The·Northwestern·Miller

MILLING PRODUCTION SECTION

IN TWO SECTIONS—SECTION TWO

MARCH 14, 1945

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Volume 221 • Number 1

Sp. 654
No. 36-VITAMIN MIXTURE
for Flour Enrichment
SINGLE STRENGTH
Each ounce contains: 380 mg. Thiamine (Vitamin B1) 230 mg. Riboflavin (Vitamin B2) 2740 mg. Niacin 2400 mg. Iron by Hydrogen The balance is starch
Minimum Federal Requirements for "Enriched Flour" per Pound:
2.0 mg. Thiamine
1.2 mg. Riboflavin
16.0 mg. Niacin
13.0 mg. Iron
One-half (½) ounce of this Vitamin Mixture added to each 100 lbs. of flour will add to each pound of flour the following: 1.90 mg. Thiamine, 1.15 mg. Riboflavin, 13.70 mg. Niacin, and 12.00 mg. Iron.
This rate of addition to the flour pre-supplies the flour itself to contain per pound a minimum of 0.10 mg. Thiamine, 0.05 mg. Riboflavin, 2.30 mg. Niacin, and 1.00 mg. Iron.
If necessary, adjustment should be made in the feed rate indicated above to meet variations in the natural vitamin and Iron contents of the flour. It is considered good operating practice to add enrichment ingredients in an excess up to 10% over the calculated required quantity.
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Manufacturing Chemists
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Each ounce contains: 760 mg. Thiamine (Vitamin B1) 460 mg. Riboflavin (Vitamin B2) 5480 mg. Niacin 4800 mg. Iron by Hydrogen The balance is starch
Minimum Federal Requirements for "Enriched Flour" per Pound:
2.0 mg. Thiamine
1.2 mg. Riboflavin
16.0 mg. Niacin
13.0 mg. Iron
One-quarter (¼) ounce of this Vitamin Mixture added to each 100 lbs. of flour will add to each pound of flour the following: 1.90 mg. Thiamine, 1.15 mg. Riboflavin, 13.70 mg. Niacin, and 12.00 mg. Iron.
This rate of addition to the flour pre-supplies the flour itself to contain per pound a minimum of 0.10 mg. Thiamine, 0.05 mg. Riboflavin, 2.30 mg. Niacin, and 1.00 mg. Iron.
If necessary, adjustment should be made in the feed rate indicated above to meet variations in the natural vitamin and Iron contents of the flour. It is considered good operating practice to add enrichment ingredients in an excess up to 10% over the calculated required quantity.
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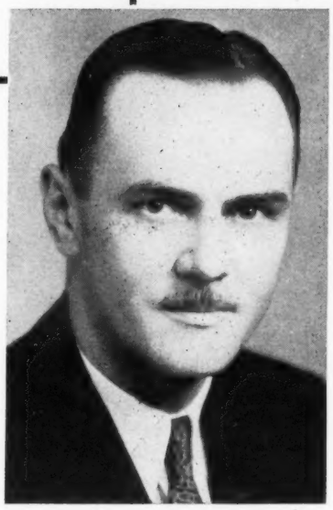
Personnel Management

The war has occasioned far-reaching changes which almost certainly carry over into and influence industrial relations of the future. Those changes and their possible implications for the future are discussed here.

By Dr. Dale Yoder

School of Business Administration

University of Minnesota



Dr. Dale Yoder

WAR, especially modern total war, changes all of us. It changes our attitudes, our habits, the way we think, and the way we act. Material changes—the development of a shipbuilding industry hundreds of miles from an ocean, or the sudden rise of munitions plants, airplane factories in what formerly were agricultural communities, or the appearance of long trains of four-engine bombers that come and go from our airports—such changes in material things may be more striking and obvious, but they probably are less important in the long run than the changes in us, in human beings and their relationships.

Similarly, the imposition of rationing, forcing our dependence on coupons and priorities, is likely to have far less significant implications for the long-term history of the nation than will the breaking of family and community ties and the creation of new associations and relationships in military services and new war industry communities. For the simple human habits of thinking and working together make up a large part of the basic warp and woof of society. Their disturbance and reorganization in wartime disrupt established patterns of co-operation and introduce an element of uncertainty and instability in society.

Nowhere have these changes been more notable and significant than in the relationships of management and its employees in industry and business. In this area—generally described as labor relations or industrial relations—the war has occasioned far-reaching changes, changes which will almost certainly carry over into and influence the industrial relations of the future. It is these changes and their possible implications for the future that we are to discuss here.

A New Appreciation

As we turn our attention to them, we may well note at the outset what is probably the most important and underlying of all these changes in industrial relationships. That is the fact that war has created a new appreciation of the importance of human resources, of manpower. Because of its scarcity, labor has enjoyed a seller's market. Manpower shortages are apparent everywhere. Current comment on every street corner reflects the fact that if he's breathing, a man can get a job. Put somewhat differently, this drastic shortage has forced us to realize that human resources are after all our most irreplaceable, that we can find substitutes for copper or rubber or tin, but there is no substitute for the manpower that ultimately must run the machine—or at least start it and stop it. Manpower scarcity and shortage—the crucial need for labor, including both male and female workers—have forced all employers, big and little, industry and government, to pause and reconsider their appraisal of labor, to recognize the basic and elemental importance of manpower. The fact that only a few short years ago the nation had 10,000,000 unemployed makes this change all the more impressive.

This development, in which manpower is characterized by scarcity instead of surplus, lies at the bottom of many other changes. Thus it has called attention to the fact that manpower is not only the most irreplaceable, but also the most versatile and adaptable of our resources. It can be molded and shaped to fit a variety of situations. Unlike most machines, it can be transferred quickly from the production of typewriters to that of machine guns or from farming to shipbuilding or from housework to shell-loading.

Advances in Training

One of the great lessons of the war, in this connection, is that in which we have learned to train workers quickly and efficiently for the most precise tasks. Recently, I visited a plant producing gyroscopes involving tolerances comparable to those in watchmaking. Originally management sought to secure watchmakers for the work. When it became apparent that the demand for the product could not be met in this manner, the job was broken down into parts and new, inexperienced workers were given special training for the new jobs thus created. These jobs are now being performed in a highly successful manner by persons with no previous industrial experience and only six to twelve weeks of job training.

This is but a sample, an illustration that could be duplicated in every industrial area. The basic adaptability of manpower has achieved a new recognition, as have several lessons in how to do job training which have been taught by this war experience.

Manpower's adaptability is, in large measure, a reflection of its complexity. It can do so many different things, because each human being is so many things all rolled in one. But this complexity, this combination of feelings, attitudes, abilities, and ideas, makes the efficient management of manpower a highly complex and difficult job. Managing men is a highly technical job. And one of the great developments of the war is the wide acceptance by management of this fact that manpower management is complicated and difficult, that it requires ability and brains and tact and a tremendous understanding of human nature and—above all—time and effort and hard work. Top management has come to realize this requirement; it has assigned more and better men to manpower management. You can see the change all over the country. It is estimated that some 50,000 persons have been drawn into manpower management in one or another capacity. And vice presidents and presidents of our large and small corporations have come to recognize the need for such manpower managers and for providing high calibre persons for these jobs. Top management now knows that the job of the production engineer who works with a half dozen or dozen variables is almost simple when compared to that of the man responsible for the manipulation and control of a labor force. This conversion of top management to a realization of the need for expertness and capability in labor relations is a change that may well rank as the definitive nonmilitary victory in human relations in World War II.

Need for Technical Knowledge

As a result, too, the managers of manpower have themselves come to appreciate the need for technical knowledge, a broad understanding of human behavior, high ethical standards of conduct, and a familiarity with the best historic practice in manpower management. They have, in other words, come to think of themselves as requiring the elements of true professional training and status. They have studied the growing literature of the field, attended conferences and institutes, and thus sought to de-

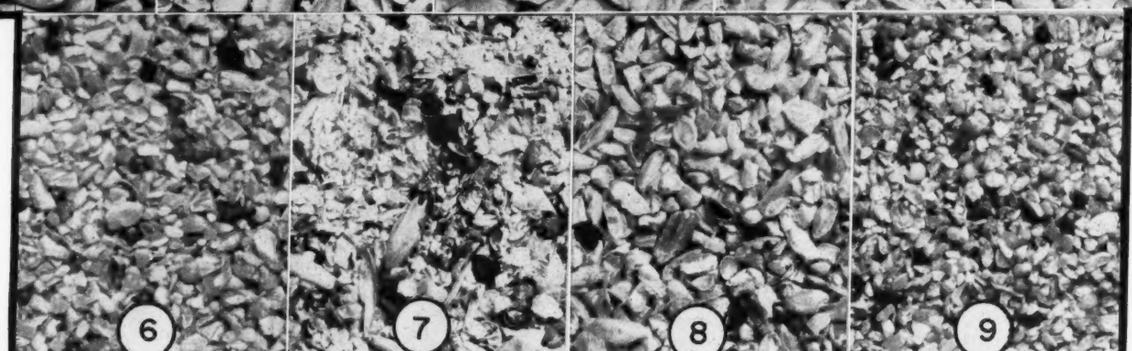
(Continued on page 21a.)

About the Author

Dr. Yoder is director of the newly formed industrial relations training and research center at the University of Minnesota "to play an important part in making possible efficient use of manpower" through training of personnel for management and labor leadership. The center, one of seven at major universities throughout the nation, will operate with existing courses of study, special seminars, extension and short courses to provide an opportunity for discussion of specific and broad subjects of labor-management problems.

Dr. Yoder is a professor in the school of business administration at the university and public member of the sixth regional War Labor Board. He is the author of widely used textbooks in the field of personnel management.

Philip W. Pillsbury, president, Pillsbury Mills, Inc., is a member of the advisory committee appointed to criticize plans of the research center and to suggest subjects for research or training.



The samples shown in the pictures above were taken from the stream in the wheat refining process at the Red River Milling Co. plant, Fergus Falls, Minn., and show the action of the Entoleter upon wheat as it is received from the accepted cleaning machinery. The wheat in picture No. 1 has been through a Haaky rotary milling separator, Carter disc oat separator, Haaky pressure scourer, tempering bin, and then another Haaky pressure scourer. (See accompanying flow diagram). The remaining pictures show the wheat stream samples at various stages of the refining process. Corresponding numbers on the accompanying flow diagram show the points from which the samples were taken.

REFINING WHEAT FOR MILLING

By Paul L. Dittemore
Technical Editor
The Northwestern Miller

FLOUR millers with an inventive streak in their make-up have found a new use for a comparatively new machine. The Entoleter, a machine employing the impact principle for destruction of all forms of insect life in flour and other dried granular food products, and originally used for that purpose, has been put to the added job of refining wheat before it enters the millstream. That word, "refining," may be a new term in milling parlance, but at the moment it seems to be the only word that is descriptive of the new use to which the Entoleter has been put.

For those few in the milling industry who may not be familiar with the operation of the Entoleter, this brief description will aid in picturing the function of the machine.

The Entoleter consists essentially of a rotor having mounted on it a series of pegs or impellers perpendicular to the rotor face. The rotor is mounted directly to the shaft of an electric motor and is enclosed in a housing. The material to be treated is introduced near the center of the rotor which revolves at a high speed on a horizontal plane. Centrifugal force throws the material to the edge of the rotor and as it passes to the outside, the material comes into contact with the pegs or impellers.

That impact action destroys any form of insect life that may exist in the product being treated. The product, until recently, usually was finished flour.

Some curious or inventive miller, however, wondered what would happen if wheat, instead of flour, were run through the machine. The Entoleter in most common use for treating flour is equipped with a rotor 14 inches in diameter that revolves at the rate of 3,500 revolutions per minute. Translated into straight line motion, the impellers on the rim of the rotor are traveling at about 1,250 miles per hour, which is pretty fast and helps to explain why all forms of insect life are destroyed when something going that fast hits them.

When whole grains of tempered hard wheat are run through the machine, insect life is destroyed, too. But that was not what the curious miller had in mind when he put the wheat through. He was more interested in what the machine would do to the wheat than what it would do to what few insects might be present.

The series of pictures at the top of this page show exactly how the wheat is affected. The accompanying flow diagram showing the various points from which the correspondingly numbered samples were obtained will be an aid in forming a mental picture of the refinement of wheat by the Entoleter.

The samples shown in the pictures and the flow diagram were obtained in the plant of the Red River Milling Co. at Fergus Falls, Minn.—one of several mills that are using the Entoleter for refinement of the wheat before it is put on the mill.

A close examination of picture No. 1 will reveal that several of the berries shown still have portions of the brush on them in spite of the fact that the wheat has been through two pressure scourers, a rotary milling separator and a disc oat separator. Those machines were not designed to remove the brush and it is no criticism of the efficiency of the machines.

Sample No. 2, it will be noted from the flow diagram, was obtained from the exhaust of the Entoleter and shows the wheat after it had been subjected to the impact action of the rotor. Pieces of broken kernels are found along with kernels that apparently have been unaffected by the impact action.

Sample No. 3 shown in the pictures was collected from the Haaky sealed flow aspirator after the offal (picture No. 7) and broken wheat (picture No. 4) from the aspirator settling chamber had been removed from the wheat.

After the offal, consisting of oat hulls, beeswing, crease dust, etc., has been lifted off by a dust collector, the remainder of the stock from the aspirator tip is sent to a reel for classification, as noted in the flow diagram.

Picture No. 5 is of the overs of the reel, while picture No. 6 shows the throughs. No. 5, the coarser chunk portions, are sent to the third break and the throughs go to the fourth break.

Pictures No. 8 and 9 show the material in picture No. 6 after it has been screened through a 16 wire. Mills using a five-break system could further classify the material in this manner if there was need of a more even distribution of the load between the fourth and fifth breaks.

A complete picture of the refining treatment can be obtained by referring from the numbers on the flow diagram to the numbers on the pictures of the samples.

At first thought, many may liken the action of the Entoleter to that of the more common splitter rolls ahead of the first break. The only similarity that might exist between the two treatments is the use of some aspiration between the splitters and the first break rolls. It will be noted, however, that with the use of the sealed flow aspirator (employing a maximum of suction) the broken kernels are removed from the stream going to the first breaks and are sent on to a reel for classification.

With the use of splitter rolls, these smaller pieces are not removed, but go on through the splitters, and escape any splitting or crushing action because of their relatively small size.

With the use of the system as shown in the accompanying diagram, the smaller pieces go directly to rolls more suited to work on them—the third and fourth breaks.

This feature, many millers believe, makes possible the production of

more middlings on the head end of the mill and distributes the load more evenly. Some minor adjustments of the rolls may be made necessary if the rolls are set to a fixed break release, but it is not necessary to make any changes in the type of roll corrugations used for the type of wheat being ground.

Few, if any, changes are needed in the purifier clothing, according to millers who have adopted the refining treatment.

The increase in middlings production, it is argued, comes about through the fact that only sound kernels of uniform size go to the first breaks and since the broken kernels are removed, they are replaced in the stream by sound kernels.

Similarly, stock going to the second and third breaks is more uniform in size, since the small pieces tailed off the classifying reel go to the fourth break.

A lowering of the flour ash is another, and even more noteworthy, feature of the use of the Entoleter in refining the wheat.

The impact action of the Entoleter on the wheat kernel literally knocks loose or dislodges a considerable amount of crease dust, beeswing and brush that scourers cannot get to because of the structure of the kernel. This dislodged material contains a significant amount of inorganic matter which accounts for its high ash content.

In some mills, the wheat, after being put through the Entoleter and aspirator, is sent directly to the first break rolls instead of being subjected to classification. The results of this system indicate that similar advantages are to be gained, with the exception, of course, that the load to the first break rolls contains the small chunks of endosperm that are taken off in the system followed by the Red River Milling Co.

Here are the results obtained by a superintendent of a large midwestern mill. The superintendent, by the way, is well known for his willingness to "try anything that sounds half-way logical." Before installation of the Entoleter ahead of the breaks his mill was using a stand of 10x36 inch pre-break rolls, followed by a 36-inch three-stage gravity aspirator. The aspirator had a 6-inch suction pipe and a constant suction 1¼ inches on a water manometer was maintained. With that set-up the aspirator was lifting 7½ lbs of offal per hour from the split or pre-broken wheat.

The offal analyzed 1.22% ash. The flour ash analyses showed .39 ash on the 85% patent and .65 ash on the 15% clear.

Microscopic examination of 50 grams of the offal for evidence of insect destruction showed six weevil fragments, one portion of a weevil and no whole weevil or larvae. The pre-break roll action was exposing some insect life to destruction.

An Entoleter was later installed parallel to the pre-break rolls and was so spouted that either unit could be used independently of the other. The Entoleter has a 12-inch rotor which traveled at 3,500 R.P.M. No change was made in the amount of suction on the aspirator.

With the use of the Entoleter, the aspirator lifted off almost five times as much offal—35 lbs—per hour from wheat from the same bin. The offal analyzed 2.62 ash, indicating that a significantly greater amount of crease dust was being jarred loose from the kernels.

The amount of aspiration put on the stock as it left the Entoleter was not heavy enough to lift the broken pieces of wheat. These went to the first break, along with the sound wheat.

Only wheat that is unsound or that has been attacked by weevil is broken by the Entoleter when the 12-inch rotor is used. The sound, vitreous kernels are strong enough to resist any shattering action since they have more resiliency. Kernels that have been hollowed out by weevils do not have much internal strength and are shattered, exposing any weevil or larva to the destructive impact action. This action is not obtained on scouring machines.

The Entoleter is not intended to replace scourers or any other piece of equipment in the cleaning department. Those machines do a good job of removing from the surface of the berries all the material that can be removed by scouring. No scouring machine ever built can get at the crease, however.

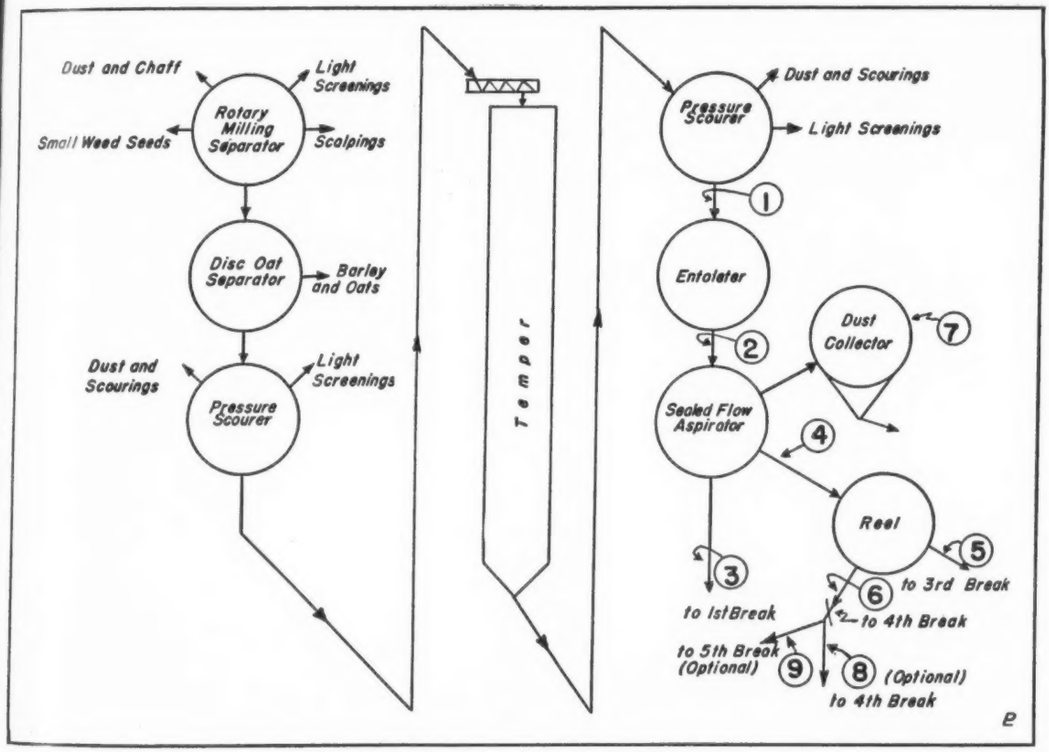
The three principal advantages of the use of the Entoleter as described above, the users state, are:

1.—An increase in middlings production by separating the small chunks from the whole kernels and sending those small chunks directly to the third and fourth break rolls.

2.—Lowering of the ash content of the mill stream by the removal of a considerable amount of crease dust, beeswing, etc., before the wheat is put on the mill.

3.—The Entoleter at the head of the mill is an aid in controlling insect infestation.

The manufacturer of the Entoleter, and its users, too, emphasize that the machine's use in preparing the wheat for milling is not intended to replace any other conditioning machines, but that its use supplements the cleaning machinery now in use. In no installation has any piece of cleaning machinery been found to be unnecessary.



Flow Diagram, Red River Milling Co. Installation

Static Electricity Ignites Grain Dust

By Chester J. Alger
Corn Products Refining Co.

THE danger of static electricity in flour mills and elevators can best be handled, I believe, by first a general definition of static electricity. Much has been written regarding this subject but today a complete scientific analysis of static electricity, its cause and effect, remains a problem for some energetic scientist to solve.

Webster defines static electricity (sometimes called frictional electricity) as follows: "The electricity of stational charges, however produced, by rubbing together unlike bodies, such as glass and silk, in which cases equal but opposite charges are produced." This brings forth the old terms used in describing electric current, that is "positive" and "negative" charges.

Static electricity is produced in industrial plants handling or manufacturing food products by the operation of such equipment and machinery as transmission belts, pulleys, reels, bucket elevators, pneumatic conveying and dust collecting systems, including spouting and fans, and in some instances it is developed in grinding mills.

It has been my experience that belts and pulleys are the greatest sources of static electricity. Why this condition exists is explainable by the fact that it is common to find belts slipping when passing over pulleys. Also in straightening out the belt after it has passed around the pulley, the friction between the plies of the belt generates static electricity, smaller diameter pulleys developing more static than the larger diameter pulleys. It has also been my experience that leather belts are the greatest producers of static electricity in comparison with rubber and fabric belts.

Knowing that static electricity is being generated where explosive dusts are in the atmosphere, in the room or in the mill, one naturally questions first: Could it possibly cause ignition of dust?

I am convinced that if static electricity is permitted to accumulate, developing what is known as a high potential charge, and that if a sufficient dust cloud is present, static electricity could cause the dust to ignite.

To prove this contention, one of the insurance inspection bureaus in Chicago has on record a small fire in a grain elevator. It so happened that dust was permitted to accumulate on the top of a sprinkler line which passed less than one foot under a fast-moving horizontal transmission belt, and the static electricity from the belt dissipated the charge to the sprinkler line. When a heavy charge accumulated, the dust on the sprinkler line was ignited and flash-burned for quite some distance. It also happened that the whole performance was witnessed by a workman engaged in the mill.

Considering that it has been established that static electricity is developed in industrial plants and that it can ignite dust, the next question is: What are we going to do about it?

In our industry, safety inspectors carry with them, for the purpose of locating static electricity, a minerallite "Statiscope," a very sensitive

(Continued on page 23a.)

Safety in Flour Mills

Accident Prevention on the Manlift

By P. L. Bachman

Editor's Note.—Following is the text of an address prepared for delivery at a meeting of the Minneapolis, Minn., Occupational Safety Conferences. Mr. Bachman is safety engineer for General Mills, Inc.

THE belt or continuous-running manlift is the most dangerous piece of equipment in any flour mill or grain elevator and has been responsible for more serious accidents than any other piece of equipment. At best with all possible safeguards, manlifts are dangerous to use and operate, especially under present conditions where most plants have a large number of inexperienced employees.

It has been predicted that unless the frequency and severity of manlift accidents are reduced, federal and state accident control authorities will eventually prohibit their use. Most of you, no doubt, have seen one or more manlift accidents, and although they are not frequent in number, they are generally quite severe. The following suggestions are offered with the hope that they will contribute in some small way toward the elimination of these accidents.

Employee Instruction

A training program should be inaugurated for the purpose of teaching each employee, both new and old, the proper method of operating and using a manlift. I would like to stress the importance of teaching the older employees as well as the new, because too many times have I seen old and experienced employees using a manlift improperly. The training program should follow along the lines of the Job Instructor Training Method:

1.—Tell the individual how to use the manlift.

2.—Show him how.

3.—Permit him to demonstrate that he has absorbed your instructions.

4.—Check him periodically to be sure that he is complying with instructions. This checkup should continue for a long period of time. Violations should not be tolerated.

The person using the manlift should face the belt, both feet should be on the step, and both hands should grasp the handles. The body should be carried close to the belt and the weight centrally distributed.

In mounting the manlift, the hand should first grasp the handle and the foot should then be put on the step, but in no event should this occur if the step is more than 6 inches above the floor. In getting off the manlift, this operation should be reversed—the foot should be removed first and then the hands.

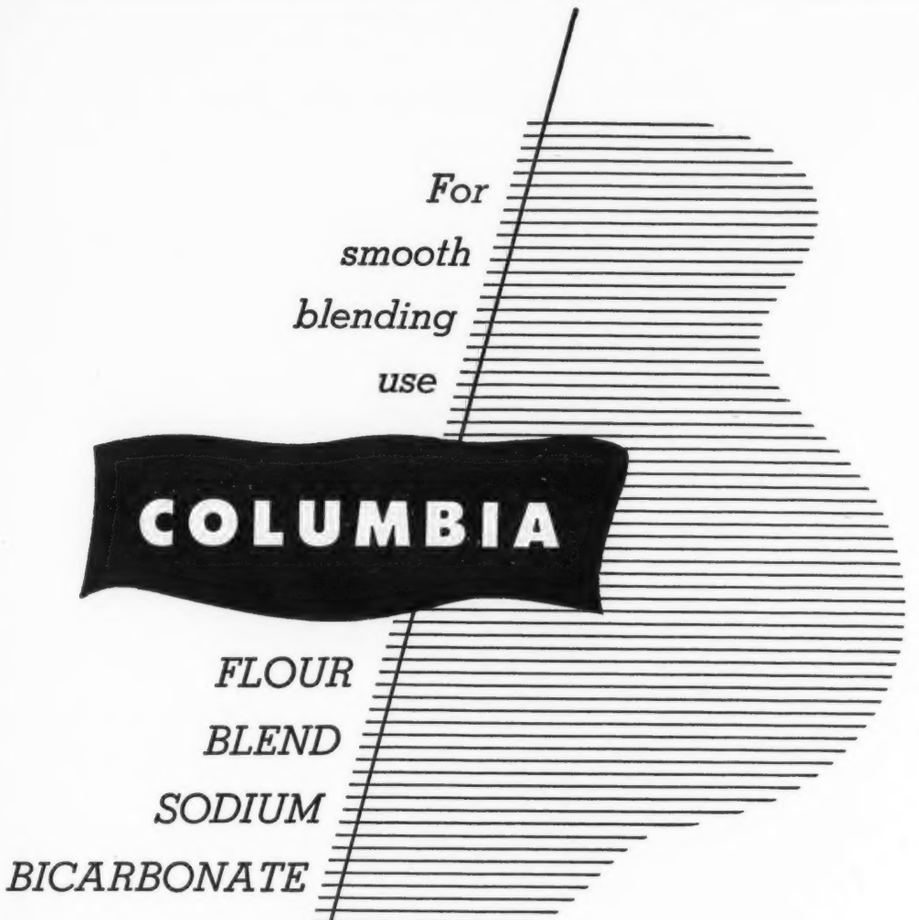
Unless tools and equipment can be completely contained within the pockets or unless they can be completely contained within a sling thrown over the shoulder, they should not be carried on the manlift.

The manlift is not intended for and should not normally be used for the elevation of merchandise and material. However, in some mills where no other means of elevation is available, the manlift may be used but only after either posting guards or providing barricades at every floor level. The customary warning light is not sufficient.

Inspection of Manlift

A periodical inspection no less than weekly should be made of the manlift. This is probably the most important part of the manlift safety program. Every manlift in the plant should be tested and inspected. This inspection should be made even though the manlift is used only occasionally. If any serious hazard is discovered, the manlift should immediately be put out of operation and should not be used until repaired. The manlift should be completely dismantled not less than once in three years, and preferably once a year if the manlift is used constantly. The dismantling should be complete and should include the head pulley with all gears. This is the only way in which wear on the taper pin and worm gear shaft can be inspected on most types of lifts.

The weekly inspection should cov-



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er, but need not be limited to, the following items: Steps, step bolts, rails, rollers or slides, belts, pulleys, motors, hand holds, driving mechanism, guard rails, landing floors, brakes and brake ropes, electrical switches, relays and lights, signalling equipment.

Maintenance of the Manlift

The principal items of maintenance are as follows:

1. **Steps.**—The best material for the construction of the step is soft wood, preferably pine. The steps should contain grooves parallel with the width of the belt. These grooves should be one fourth inch wide, one fourth inch deep, and approximately one half inch apart. This type of construction provides a nonskid surface which does not readily fill up with dirt and grease and does not become slippery with wear. If the step is constructed without corrugations, it should be covered with the new nonskid floor covering developed in the past two or three years for the United States Navy. This material wears well and gives a very good nonskid surface.

The steps should fit the track perfectly so that they will not jump out of the track. If it is necessary to remove a step for repair or to remove it permanently, the handle bars on both sides of that step should likewise be removed. This will prevent an employee from grasping a handle bar under which there is no step.

The bolts fastening the step to the framework, as well as the bolts fastening the framework to the belt, should be tight and fastened with lockwashers.

2. **Rails.**—The guide tracks and braces should be in first-class shape and should be secure. Tracks partially worn should be replaced. At no time should excess slack be permitted.

To prevent buckling or bending of the rails, the entire manlift should be suspended from the top and should not be supported at each floor. There should, however, be guides on each floor to hold the guide rails in place. This type of construction will permit expansion and contraction without buckling.

3. **Belts.**—The belt itself should be very thoroughly checked, particularly where the two ends of the belt are fastened together. Any indication of excessive stretching, wear or weakening should be justification for replacement. Although lifts in excess of 100 feet are not recommended, nevertheless, where they are found necessary, the belt should be 16 inches in width. The belt should always be kept tight.

The speed of the belt should never be in excess of 90 feet per minute and should be uniform throughout the plant. In flour mills where there is a great amount of traffic on the lift, it is advisable to reduce the speed to 60 feet per minute.

4. **Motors.**—The motor gear reducer and entire driving mechanism should be very carefully inspected because a failure here might permit free wheeling of the belt with an attendant serious injury. A freewheeling clutch with a ratchet can easily be installed which will prevent the elevator from running backward, however, this offers no protection against the belt running forward at an excessive speed. To my knowledge, no practical device has yet been developed to prevent a freewheeling belt from rolling forward too fast.

5. **Hand Holds.**—The cup-type hand hold is to be preferred because it prevents an employee grasping the wrong handle. The hand holds should be 50 inches above the steps and should be painted a light color—"Visibility Yellow." The following stencil in large letters should appear immediately above the hand holds:

FACE BELT
ONLY
ONE PERSON
ON EACH STEP

Electric or well-lighted signs should be installed indicating that the manlift is intended for the use of employees only.

If other types of hand holds are in use, a flap should be arranged at each hand hold so that it will drop down over the hand hold when that particular handle is following a step on the upside or is ahead of a step on the downside. This arrangement precludes the possibility of grasping the wrong hand hold.

6. **Floor Landings.**—The bottom landing, when the elevator pulley is above the floor level, should be provided with steps and a platform on the upside so that the level of the platform is at the same level as the elevator step as it completes the semicircle around the bottom of the elevator pulley. There should be no steps and platform on the downside. The floor itself should serve as a landing area.

Where space permits, a platform 2½ feet or 3 feet above the floor level should be provided on the top floor. This platform will permit an employee to step off the manlift in the event he rides past the top landing and the automatic switch fails. This

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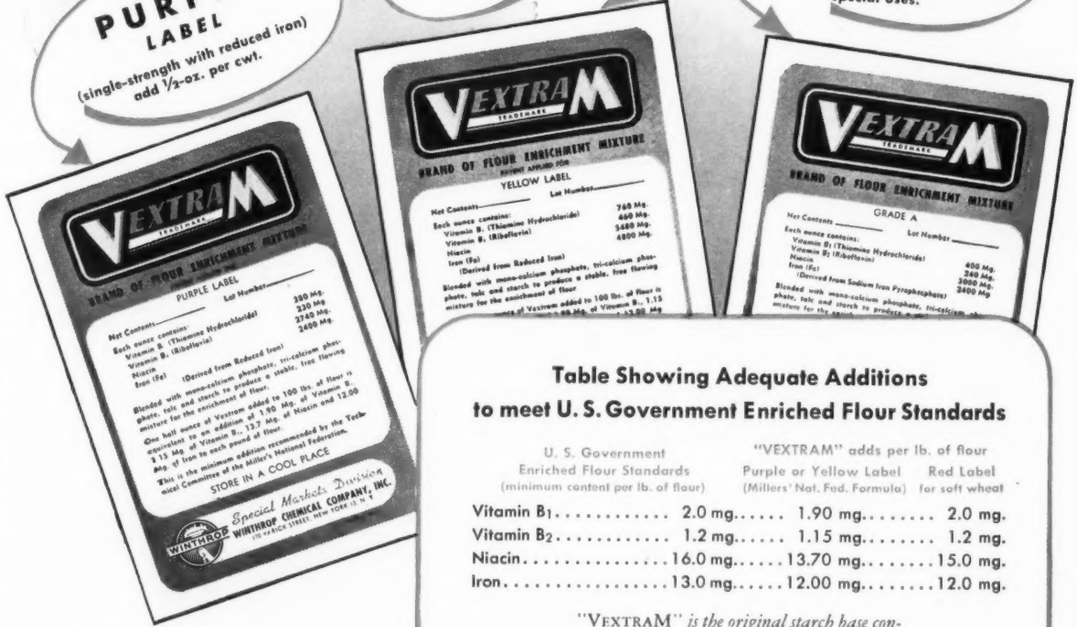

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Table Showing Adequate Additions to meet U. S. Government Enriched Flour Standards

	U. S. Government Enriched Flour Standards (minimum content per lb. of flour)	"VEXTRAM" adds per lb. of flour Purple or Yellow Label (Millers' Nat. Fed. Formula)	Red Label for soft wheat
Vitamin B_1	2.0 mg.	1.90 mg.	2.0 mg.
Vitamin B_2	1.2 mg.	1.15 mg.	1.2 mg.
Niacin	16.0 mg.	13.70 mg.	15.0 mg.
Iron	13.0 mg.	12.00 mg.	12.0 mg.

"VEXTRAM" *is the original starch base concentrate with formula containing phosphates.*

"VEXTRAM" gives you these added values:

1. pH control assures stability—minimum vitamin potency loss.
2. Minimum increase of ash content of flour.
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Order "VEXTRAM" *Purple Label—Yellow Label* for safe enrichment, or "VEXTRAM" *Red Label* for soft wheat family flour.

platform can also serve as a platform for servicing the motor and other driving mechanism at the top of the elevator. Steps should be provided to this platform so that the manlift will not be used to reach it.

The landings on all floors should be protected with a nonskid surface. At each landing, there should be an enclosure of standard guard rail allowing only sufficient opening for getting on or off the elevator, leaving a landing space of not less than 2 feet around the opening. The standard rail should be arranged so that an employee going through the guard rail must make a turn before arriving at the manlift opening. In other words, the opening should either be indirect or staggered. This will prevent anyone from falling through the guard rail opening and down the elevator shaft. The area immediately adjacent to the landing space should not be used for piling materials, tools, or any other items. A toeboard not less than 4 inches in height should be installed directly under the guard rails, to prevent any object from inadvertently sliding under the guard rail and down the manlift opening.

7. Brakes.—The brake used must be capable of quickly stopping the manlift. A travel of 6 inches after application of the brake should be maximum. The magnetic type actuated by a spring which is held open by a magnet is preferred. If this type is used, it should be tested frequently to guard against failure.

Brake bands should be inspected frequently to guard against failure and should be of sufficient size to guarantee quick operation.

8. Switches, Relays, and Lights.—The automatic safety switch or switches should be located immediately above the top floor landing, not over 12 inches above the floor, and should be so arranged that after being thrown by the step, they can be reset only on the top floor and located in such a position that the person resetting them has a clear view of both the up and down side of the elevator shaft. In no event should they be so located that a person standing on the step can reset them. The proper installation should prevent anyone from the lower floors from starting the manlift after the safety switch has been thrown because of a person riding past the top floor landing.

If practical, there should be no starting switch that can be actuated from every floor; however, in cases where this is impractical, it is permissible, but in no event should this starting switch be so arranged that it can start the manlift after the manlift has been stopped by the automatic safety switch. The rope which actuates this starting switch, as well as the regular stop switch, should be sash cord with an inner core of wire. This will prevent any stretching or shrinking.

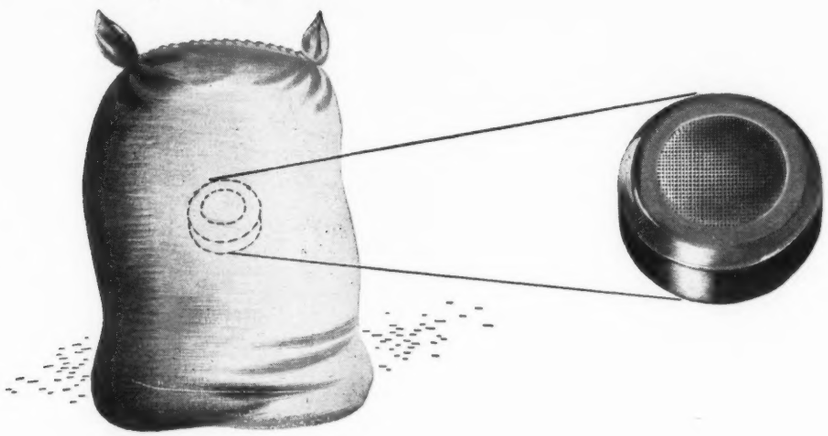
A secondary safety stop should be installed to operate automatically immediately after and in the event of failure of the regular safety switch. The purpose is to positively prevent the possibility of a man being carried over the top of the manlift.

A flashing electrical sign should be conspicuously placed above the top floor. This flashing sign should carry the words "GET OFF" and should be in operation at all times that the manlift is in operation.

Adequate lights should be provided at every landing.

In conclusion, safety on the manlift is no different than safety anywhere else throughout the plant and is dependent upon the three E's of safety —Education, Engineering, and Enforcement.

ONE OF 31 DOW CHEMICALS USED BY THE FOOD INDUSTRY



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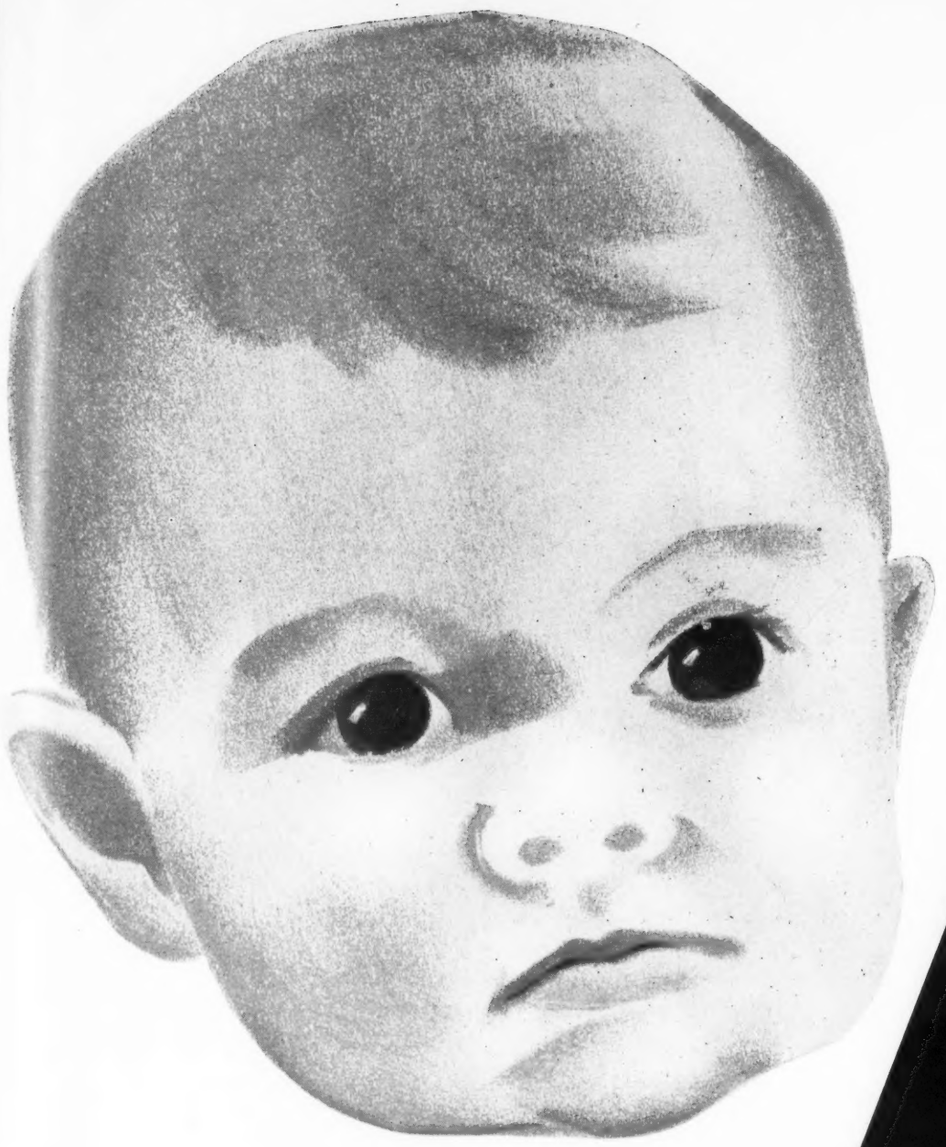
—BREAD IS THE STAFF OF LIFE—

Importance of Clean Wheat

THE improper cleaning of wheat means that there is more care and attention required in the bolting of the break flour; more waste of such flour because of the stock which has to be carried over to lower grades and because of its contamination. And then the middlings suffer, and, as these high grades are injured, the depreciatory effect is felt in every subsequent operation in the milling process.

It should be remembered that as we clean the wheat we are helping to purify the break flour, and that, as we make this flour pure, we make the cut-off and tail of the break flour reel cleaner and better, and in this way include the intermediate and lower grades of stock. As we clean wheat we are purifying middlings, and as we increase the purity of the middlings we increase absolutely the purity of the patent flour. Furthermore, the cleaner we get our wheat, the better yield we get, the less flour we get in the feed. This comes about by having, as we said before, cleaner break stock and cleaner middlings. There is a smaller proportion of cut-off from the flour reels and a cleaner quality of stock to go to smooth roll reductions. Hence there is less milling to do, less impure stock to be handled by the rolls, more flour to be taken off after each reduction, less flour to be carried from one reel to another, hence less work to be done at the tail end of the mill, less stock out of which to make low grade flour, and less stock to go into the feed pile.



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Bolting Cloth in Wartime

Silk normally comprises the most important branch of the Swiss textile industry. All phases of the work, from the culture of the cocoon to the finished frock, are carried on in the country, at least to some extent.

Silkworms are raised on a limited scale in the southern part of the country, in the canton of Ticino. The silk is of excellent quality but is sufficient to supply only a small proportion of the industry's requirements. Until Russia became involved in the present war, large quantities were imported from Japan by way of Siberia. Later, Switzerland was dependent upon Italy for raw silk, occasionally obtaining small quantities which that country might have available for export after having first filled the demands of the Nazi war industry. Early in 1943 arrangements were made in Rome for delivery of 80,000 kilograms of raw silk in addition to 58,000 kilograms which were outstanding from 1941. Small quantities trickled across the frontier until Italy became a war theater in September, 1943. Minute quantities also came in from Bulgaria from time to time.

Raw silk is imported into Switzerland, thrown into yarn, dyed, and woven into cloth. Until recent years, much weaving was done in the homes, but privately owned hand looms have decreased in direct proportion to the extension of mechanical looms in the factories. At present commercial production is almost entirely a factory industry conducted on power looms, with the exception of the weaving of bolting cloth used for fine sifting of flour and talcum.

Bolting-Cloth Manufacture

Records indicate that bolting cloth was first made in the Netherlands from wool; but later, silk was found to be more suitable. In 1830, this type of weaving was introduced into Switzerland, where its rapid development soon made that country the largest supplier in the world.

Silk bolting cloth has never been produced successfully on power looms, and, consequently, could not be woven profitably in the United States. Only the highest-grade silk is used. It is carefully selected and double thrown into a fine, hard-twist organzine which is partly degummed before weaving. Utmost care, developed through years of experience, must be exercised to produce an absolutely even, strong, elastic, open-mesh fabric. The cloth is not dyed, and it retains all the natural gum remaining in the thrown silk. It is sold in different grades, according to the degree of fineness required for the various siftings. Since it is not produced in the United States, and it is absolutely essential in flour milling, bolting cloth for milling purposes is the only item of silk manufacture which has been on the free list in every United States tariff since 1857.

Export statistics show that 66,789 lbs of bolting cloth were shipped out of Switzerland in 1939. In that year the United States imported 20,270 lbs, valued at $586,731, for milling purposes, of which 16,122 lbs ($493,767) came from Switzerland. In the following year 13,214 lbs ($383,126) were imported of which Switzerland supplied 11,157 lbs ($339,487). Imports in 1941 totaled 18,120 lbs ($568,151), Switzerland's share amounting to 17,763 lbs ($561,855).

Smaller quantities of bolting cloth are imported into the United States for screen printing, sign painting, and similar uses. These, however, are covered by the tariff.—Foreign Commerce Weekly.

—BREAD IS THE STAFF OF LIFE—

Anti-Friction Bearings

Operating tests have shown that a reduction of 50% in bearing friction may reasonably be expected when the plant is completely equipped with anti-friction bearings, and actual reductions of 25% and more in total power load have resulted where the installations have been made. A little figuring with a pencil and paper will show you how few months would be required to pay for complete anti-friction bearing equipment in your plant with the power savings alone.

A good anti-friction bearing properly designed for its load and properly cared for will last almost indefinitely. If the cost of such a bearing is spread over a life of 20 years, the annual saving from reduced power will show a surprising reduction in your manufacturing costs.

Just imagine a stack of V-90 biscuits reaching ten times higher than the moon . . . and you'll have a rough idea of how many of 'em have been baked in the six years that V-90 has been on the market.

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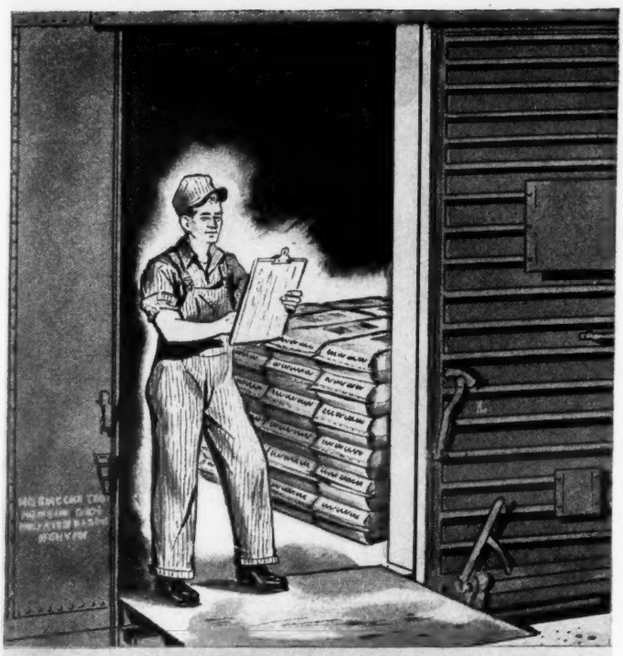

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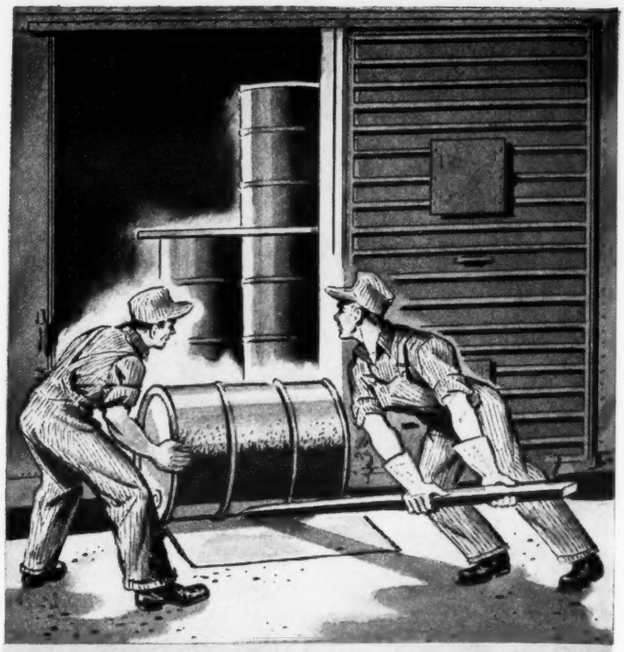

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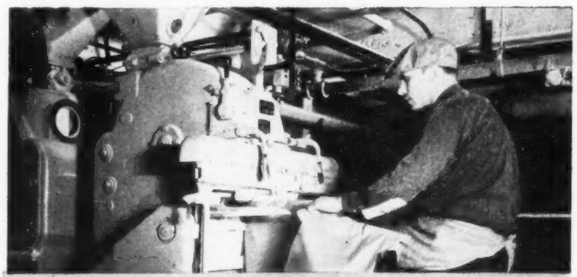

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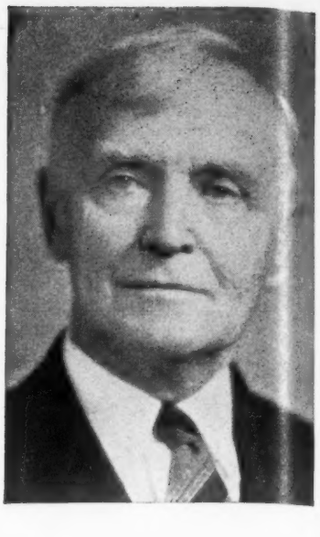
Cereal Chemistry for Operative Millers



Dr. C. O. Swanson
Kansas State College

Action of Different Types of Enzymes

Editor's Note.—This article is the second in a series of five articles prepared by Dr. Swanson on the role of enzymes in the chemistry of wheat and flour. The author, a widely recognized authority in the field of cereal chemistry, is the recipient of many awards and honors for the contributions he has made to the knowledge of his subject. The third article in the series will appear in this journal next month.

THE stability of substances present in wheat was emphasized in a previous article. Increasing the moisture content of dry wheat creates conditions of instability, the first manifestation of which is an accelerated rate of respiration. This is an oxidation process, as shown by the production of heat. An increase in the rate of respiration means a more rapid rate of living. Dry seed is able to maintain viability because of the slow rate of living, but an increase in moisture, with consequent rise in respiration rate and heat production, greatly shortens the duration in which the life principle is continued in the seed. Cool, dry conditions are best for maintenance of viability in seeds.

Germination Increases Sugar Content

If the moisture content of wheat is increased to about 40%, or approximately what is absorbed when wheat is soaked in water, changes connected with germination take place. A sample of dry wheat which tested 68 milligrams of maltose sugar per 10 grams of wheat meal was kept under conditions of germination for 72 hours (Table 1). At the end of that time, the amount of maltose in 10 grams of the whole wheat meal was

Table 1.—Increase in Maltose Producing Power by the Germination of Wheat for 72 Hours

	Milligrams maltose per 10 grams meal		
	Before diastasis	After diastasis	Increase during diastasis
Check, not germinated	68	240	172
Whole kernels, germinated	415	1,050	635
Germ ends, germinated	720	1,800	1,080
Brush ends, germinated	130	750	620

increased to 415 milligrams. Some of the germinated kernels were separated into halves, brush ends and germ ends, and these were tested separately for maltose content.

The germ ends contained more maltose than the whole kernels and nearly six times as much maltose as the brush ends. The increase in maltose had been produced by enzymes during the process of germination. The germination process also increases the maltose producing power or diastatic activity, also designated as diastasis, which is measured in terms of milligrams of maltose produced when wheat meal is digested for one hour in water at 86° F. The maltose producing power was much greater in all cases after than before germination. It was greatest in the germ ends, less in the whole kernels and least in the brush ends.

Saccharogenic enzymes are responsible for the increase in maltose content during germination and also the increase of the power to produce maltose. These enzymes are mainly those which are stored in the kernel, presumably after the kernel building processes of growth were finished. They are activated by the increased moisture content needed to start and maintain the germination process. Additional enzymes are also secreted before and during the germination process. The epithelial layer of cells located between the germ and the endosperm have as their special function the secretion of enzymes, that are needed to decompose the stable substances stored in the wheat kernels in order to be usable for building the tissues in the new plant.

The increased power of maltose production after germination is due both to the activated storage enzymes and to the enzymes added by secretion. During germination, maltose production is slow compared with what takes place during diastasis. During 72 hours of germination (Table 1) 347 milligrams of maltose was produced in the meal of the whole kernel. During one hour of diastasis at 86° F., 635 milligrams were produced, due to the catalytic effect of the higher temperature and the larger amount of water present during diastasis.

Enzymes Are Characterized By What They Do

The substances upon which enzymes act and in which they cause transformations are known as substrates. The names of these substrates furnish the basis for the naming and classification of enzymes. The enzymes are usually named by incorporating the term "ase" with the name of the substrate. Thus, enzymes which act on proteins are called proteases and those which act on starch are known as amylases from "amylum," the Latin word for starch. They are also known as diastases. The enzymes which act on fat are called lipases, derived from the Greek word "lipos" for fat. The more general name for enzymes which act on various forms of fats is esterases, of which the lipases constitute one group. Often the ending "lytic" instead of "ase" is used. This terminology simulates electrolytic.

The combination of "lytic" with the name of the substrate is used as an adjective. Thus we have amymolytic enzymes, proteolytic enzymes and lipolytic enzymes for those which act on starch, proteins or fats respectively.

Some Special Names

Some of the well-known enzymes were named before the present system was adopted. Saliva contains an enzyme, ptyalin, which changes starch to sugar as is well known from the sweetness which develops upon the prolonged chewing of bread. The enzyme in gastric juice which splits the proteins into simple compounds was discovered more than a century ago and was called pepsin from the Greek word "pepsis" which means digestion. Pancreatic juice contains the enzyme, pancreatin, which acts on carbohydrates, and also trypsin, a protease. Papain is a protease present in several plants, including wheat, and was first studied in the green fruit of the papaya.

Hydrolyzing Enzymes

Hundreds of different enzymes are known. Those of particular interest in cereal chemistry may be placed in four general groups: carbohydrases, proteases, esterases which include lipases, and oxidases or oxidizing enzymes. The first three of these may be placed in one general group called hydrolytic enzymes. Their main function is to split the compounds upon which they act with the accompanying addition of water to the units of the products. Thus the large starch molecule $(C_6H_{10}O_5)n$ is broken down into maltose, $C_{12}H_{22}C_{11}$; glucose, $C_6H_{12}O_6$, and dextrins of varying composition. These products have more water, H_2O, in proportion, than does the starch from which they are derived. The same is true of the cleavage products from proteins and fats. All have smaller molecules than the substances from which they were derived as well as the common property of having a greater proportion of water in combination.

Steps of Enzyme Action

Enzymes are specific in their action. That is, an enzyme will act only on a certain substrate, but they also act in stages. Each stage is brought about by a particular enzyme. The following illustrates some of the processes. The amylases, found especially in malted grain, hydrolyze starch to maltose. The maltose is then acted on by maltase which changes it to glucose. Dextrines are produced by intermediate steps. Similarly it requires several proteases to hydrolyze the complex protein molecules to amino acids.

Pepsin hydrolyzes proteins to proteoses and peptones which still have protein properties. Thus the protease pepsin splits the large protein molecule into smaller units without destroying all protein characteristics. Some proteases like trypsin and erepsin hydrolyze the proteins to peptones and even to amino acids.

These enzymes, however, are not simple substances but each consists of a mixture of several proteases. Thus one protease may split the protein molecule only to simpler units like the peptones. Then another splits these to peptides, and still another protease splits the peptides to amino acids. The amino acids, while still complex, are hydrolyzed to such an extent that the protein characteristics are lost. They are the units which can be used for building new proteins. Thus in germination of the seed, the protein molecules are broken down into these amino acids in order to have units of such mobility that they can be moved from inside the kernel to the place where new plant tissues are built. In the process of digestion of food in the animal body, the proteins are hydrolyzed by the different proteases into amino acids which are then used for building and repair of body tissue.

Oxidizing Enzymes

The main function of oxidizing enzymes is to promote oxidation. The classification of these enzymes varies somewhat with different authors.

The Bad Boys Are on the Spot

IN DEMOCRATIC countries, police departments nab "bad actors" and keep them out of circulation. In food processing, we also encounter "bad actors"—elements and conditions that rob products of freshness, turn them rancid, destroy their flavor. But food technologists are already on their trail. They know, for example, that they must protect food products from irradiation by light . . . exclude oxygen or excessive humidity . . . guard against insect infestation.

Recent research shows that copper and iron, even in minute traces, are "bad actors." In the manufacture of shortening, they are eliminated to increase rancidity resistance of fats and oils. They affect stability of dairy, bakery, and meat products—and practically any food that contains the slightest traces of fats or volatile flavors easily oxidized.

Yes, they even affect the stability of certain vitamins—Vitamin "C," for example, and some of the "B" group.

We have reduced the copper and iron in Diamond Crystal Salt until today they represent less than 1 part per million. Salt products in general, however, may contain significant amounts of both copper and iron.

NEED HELP? HERE IT IS!

Why not check up on the salt you are now using? And if you would like our help in keeping the "bad actors," copper and iron, down to a minimum in your plant, drop a note to our Director of Technical Service, Diamond Crystal, Dept. A5, St. Clair, Michigan.

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Some use "oxidases" as the general name for the class. Others use "oxidases" as a subclass or group name. Besides oxidases, the groups: oxygenases, peroxidases and catalases are given. Zymase, the group of enzymes which promote fermentation by yeast, is classed with the oxidizing enzymes.

In building the various compounds in the plant, deoxidation is first necessary in order to obtain the carbon from the carbon dioxide, CO_2. Then this carbon is recombined in the various organic substances such as proteins, carbohydrates and fats. The various processes connected with oxidation in plants must take place at ordinary temperature in order that neither the cell structures nor the products shall be injured. The main function of oxidizing enzymes is to make this possible. Catalases are placed in a class by themselves by some writers. Thus there is considerable variation in the naming and classification of these oxidizing enzymes which have the common function of promoting oxidation.

Enzyme and Cell Action

Living cells can produce other cells and some cells have the function of producing enzymes which serve as tools for other cells in performing biological activities.

Enzymes differ from cells in that they cannot produce other enzymes. Enzymes, however, can act independently of living cells. Fermentation, caused by yeast, is due to a group of enzymes known as zymase which produce alcoholic fermentation. Zymase may be removed from yeast by first crushing the cells and then separating by appropriate methods. This product will cause the same kind of alcoholic fermentation as is produced by living yeast cells. Several enzymes, such as pepsin, trypsin, papain, diastase and others may be obtained by separation from the cells or environment in which they are produced. In the dry condition, they maintain their activity for long periods. The commercial production of enzymes is highly developed.

Enzymes Persist After Life Departs

How enzymes are separate from the life principle is specially shown by their existence in active condition in flour. The continuance of the life principle in the kernel depends on maintaining the structural organization. After this is destroyed by milling, the life principle can no longer function. But the enzymes which were present in the kernel are found in an active condition in the mill products. The continuance of the life principle in wheat is of much more limited duration than the continuance of the activity of the enzymes. Most wheat kernels are dead after about 10 years, the duration of life depending on the temperature and moisture. One sample of hard winter wheat 45 years old had a diastatic activity of 122 maltose units per 10 grams wheat and another sample of old Turkey wheat had a diastatic activity of 181 units. Both these samples had zero viability.

The enzymes which serve as the "tools" of the life principle remain the same as the tools of a mechanic are left after he departs from this life. A straight flour 29 years old had a diastatic activity of 167 units. While it was not known what units would have been obtained in the fresh condition the figures are sufficiently high to show the persistence of enzyme activity during a long period of storage.

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It is essential that your hard wheat flours bake consistently to your established standards. But improper diastatic treatment can spoil your most careful wheat selection and milling methods.

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We will provide samples for experimental work in your own laboratory, or you may send to us samples of your untreated flours for analysis. Maltose or gassing power analyses in our laboratory are free to DIABLEND users. Ask for a sample and quotation of DIABLEND today.

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Suggestions for Supervisors

Helping Veterans to Become Readjusted

By Allan R. Cullimore

EVERY veteran who comes back will have a lot of adjustments to make. Whether he has been hurt in the war or not, he will have to adjust himself to his home. His wife won't be quite the same and the baby may not look as he remembered it. The job will be different—the company may be manufacturing different products, the management, supervisory and working forces may be different, and the job will seem different. If he happens to have lost a finger, or worse, there will be other adjustments to make. In any case, all the men we have coming back will have to learn to fit into the situation satisfactorily.

Perhaps the most important help that can be extended to the veterans can be given by supervisors. Someone has said, truly, that "the supervisor can perhaps do more than any individual in the organization to help the veteran make a smooth and satisfactory adjustment."

Editor's Note.—The author of the accompanying article is president of the Newark College of Engineering, Newark, N. J., and is head of the Engineering Science and Management War Training Program sponsored by the United States Office of Education in the region including New Jersey, Delaware and Pennsylvania. He is also a member of the rehabilitation committee of the war training program and a member of the New Jersey American Legion rehabilitation committee. The article appeared originally in Management Information, published by the Elliott Service Co., and is reprinted by permission.

Pay Envelope Important

The truth of the matter is that not only does the supervisor make the adjustment to the work in the plant easier and insure successful production but he, at the same time, does more toward helping the man along all lines than any other single factor. This is because, when a man comes home with a pay envelope regularly, his other problems of adjustment seem very small.

In spite of all that management can do in placing these men, the burden of working out their salvation is going to lie chiefly with the supervisor, and he ought to understand pretty definitely a few of the simple things that lie back of success with these men.

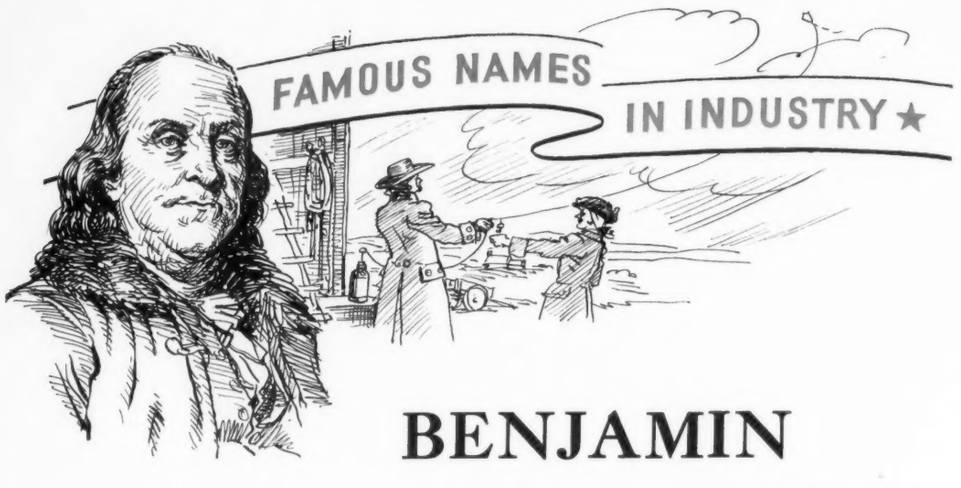
In the first place, it can be stated that the problem isn't essentially different from the problem of general supervision. In many ways it is much easier. You know the disabilities and you know the troubles—you can see them in many cases—and in every case you are on the lookout for them. It is easy to spot the trouble pretty quickly if you have some idea of where it lies. If supervisors will take the job in their stride and keep a few simple things in mind the problem itself will present no considerable difficulty.

Type of Limitations

Of course, you are going to have several general types of men: those formerly employed by the company; those who have been previously employed in similar work elsewhere; and men who have never worked before. Some of the men, particularly those returning right now, are going to be over-age. Some are coming back because they are unfit for military duty. Some of them have had certain emotional troubles which unfitted them for the armed forces. But you must not be afraid of these emotional difficulties.

The thing to remember is that all of us have emotional difficulties. All of us get mad and sometimes rant around and do things that we are heartily ashamed of afterwards. None of us are perfect in our emotional balance. These men have joy and anger and moods just the same as the rest of us. Certainly, these men whose troubles we know are very much easier to deal with than those fellows who we think are all right and then go off on unexpected tangents.

To put the thing simply, there is so much normal about any one of these returned veterans that the abnormalities, the things that are a little out of line, are in the main very insignificant and should cause no particular worry. Our attitude should be something like this. "Well, fellow, you come back and you find things a



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Here was a Man—Whether in the company of scientists, diplomats, literary men or craftsmen he could speak with authority—and did.

America owes much to Benjamin Franklin's powers of organization but the world owes and pays homage to his scientific achievements which established the fundamentals of the nature of electricity.

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little different, don't you? You have got to get used to it and adjust yourself. You want a good job, and if I can help you get it and keep it, I will. The adjustments you have got to make you can probably make by yourself, and there is nothing strange about making adjustments. We all do it every day. So keep your shirt on and saw wood, and we will all be behind you if you need us—but the chances are you won't."

Same Old Technique

The most important single thing to keep in mind is that a veteran, no matter what his limitations, is just another one of us with perhaps an adjustment or two or three to make that we civilians are not required to make.

Some supervisors feel that they are going to find the veteran has changed in personality, and of course, there are some things which have happened to him which may affect his work in the plant. He may chafe at having to take orders because he has had to take orders for so long. Or, he may be on the other extreme—he has taken orders so long that he may want more orders than you can give; that is, he may feel that you should do his thinking for him.

Same Old Problems

There are lots of particular cases that we note. Some men say they can't concentrate (but we have those in everyday life). Some veterans may have the returned hero complex. Some will be men whose skills have not increased with their age. Other men may resent that they were fighting in a foreign country while the men at home were coining the dollars. But any good supervisor knows how to attack problems of this kind and we have their counterparts in everyday life.

Then there are some things that have happened to these veterans while they have been away that are all to the good. They are used in doing jobs under trying circumstances—in the mud, in water, and under fire. They have had to perform with poor tools, and they have had to learn a lot about ingenuity. Many of them become very much hardened to physical work, and they have been accustomed to discipline.

Treat Him Like Anybody Else

In handling the returned man effectively, the supervisor should introduce the veteran to the other men with whom he will work, not as a veteran, not as a strange man with a disability, not as a cripple, but as one who has come to work—not on the basis of what he hasn't but on the basis of what he has.

No man gets a job because he hasn't this or that, but simply because he has the stuff which it takes to hold a job. It goes without saying, of course, that no man should be put in a job unless he has the ability, either physical or mental, to hold it. If a supervisor finds that a man can't hold a job which has been selected for him, he should be transferred or even laid off if the case warrants it.

Don't be misled into trying to help by being overly soft. What is needed is a straightforward dealing tempered with justice and a desire to help.

The supervisor also has a responsibility to try to bridge the gap between the time since the veteran left and the present. A little time could be spent profitably on giving him the latest news on the company, any changes in its policy and changes in personnel which the supervisor thinks would affect him. This is particularly true when an old employee is coming back to his old job.

Training on the Job

As far as instruction of veterans is concerned, the same principles should be used as are used with other workers. The four steps of good job instruction — preparation, presentation, performance tryout and follow-up should be followed.

It would help tremendously to get together with workers already on the job and discuss the whole matter of the veterans' problems, perhaps along the same lines as this article indicates, but in your own words, together with your own interpretation.

As far as general suggestions which might be of particular importance to supervisors in handling veterans are concerned, the same principles which we use every day are applicable—justice and fairness in treating all employees alike, and being readily available to help. Never refuse a man a chance to unload his mind. Indicate a real interest in his advancement and catch a grievance before it has had a chance to develop.

Do Not Be Curious

You should also be mighty careful to avoid expressions of curiosity about the handicapped. After all, this handicap is none of your business. It is one of those things about which your curiosity may get the better of you. Hold it in check at least until you know the man pretty well.

Remember that most of us are handicapped. Some of us have a stiff

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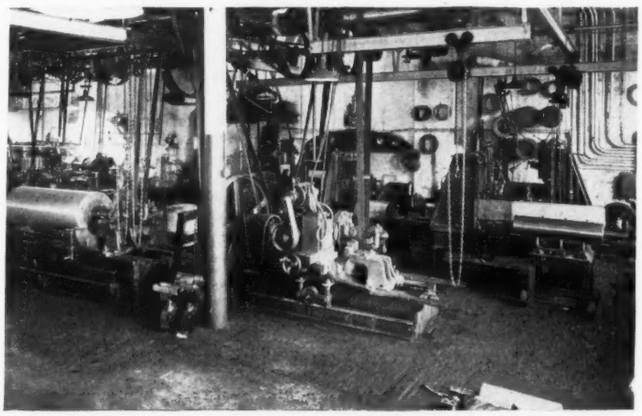

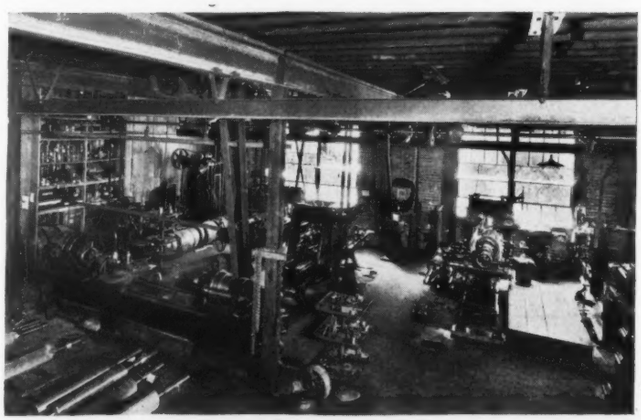

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knee and others have brains so rigid that it is hard to get a new idea. Still others of us have to get used to false teeth, and it isn't considered good form anywhere that I know of to be too curious about how many false teeth a man happens to have in his head. In other words, treat the man as if he is a regular fellow and one of the gang.

Sympathy is worse than curiosity. Amazement is only to be used when he really amazes you on the basis of what he can do. Don't have any fuss, any overindulgence. Just try to ease the man into the same old routine with a minimum of friction.

You, yourself, are going to be pretty sensitive and you are going to notice any signs of fatigue or strain or any particular things which you think are causes of failure. Keep this in your mind: your supervisory job is to get out production and it is doing the veteran no good unless he can keep up to the other men. In that respect you have got to be rather strict.

Don't Think You're a Doctor

You should not take it upon yourself to make medical diagnoses or give medical advice. That is what doctors are for. The questions of safety and personnel should be referred to the proper persons. The worst thing you can do is to make a veteran "stick out like a sore thumb" and the best thing you can do is to treat him like anybody else.

The question often comes up as to how you should assist a man. There is only one answer, and that is, without apology and without too much talk. If a man is in trouble and needs help—whether he likes it or not—give it to him; but don't give it to him unless he needs it. If a man prefers to struggle with his overcoat, let him struggle. That is his business, but if he struggles with a machine, that is your business.

His Private Life

One of the greatest mistakes we make is not to differentiate between a man's private life and his life in the plant. After all, in the plant a man may be vocationally limited or occupationally limited—there may be certain fields that he cannot enter successfully—but as far as you are concerned, that is all his handicap amounts to. Whether or not he has false teeth and wants to wear them at work or at home isn't anybody's business but his own.

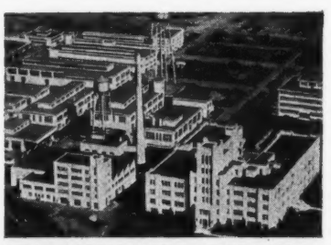
Do your job with the veterans as you do it with other men. Do not worry about difficulties but watch some of the things that we have mentioned in this article. You will be sensitive to the veteran who has occupational limitations, and my experience is that you will be liable to want to help too much. Remember that the best thing you can do is to let the man help himself and that a supervisor's job is to supervise, which means to indicate to an individual how he can be more productive for his own good and that of the company.

TOMORROW: SHOPPERS WILL DEMAND FLOUR ENRICHMENT

That War Food Order No. 1 has for two years, now, made enrichment of bakers' white bread and rolls mandatory—and that it appears likely to remain in force for some time yet—tells only two parts of a four-part story vital to you.

Part three: Housewives, returning from war work, men returning from the Service, have experienced the benefits of improved nutrition, have learned the values in food enrichment. They are going to insist on enriched bread, even without Government orders, and they are also going to insist on enriched family flour.

Part four—*which is up to you:* The flour milling industry today, through vitamin enrichment, is in the fortunate position of leadership. Preserve that leadership through continuing *emphasis* on enrichment. Enrich ALL of your family flour.



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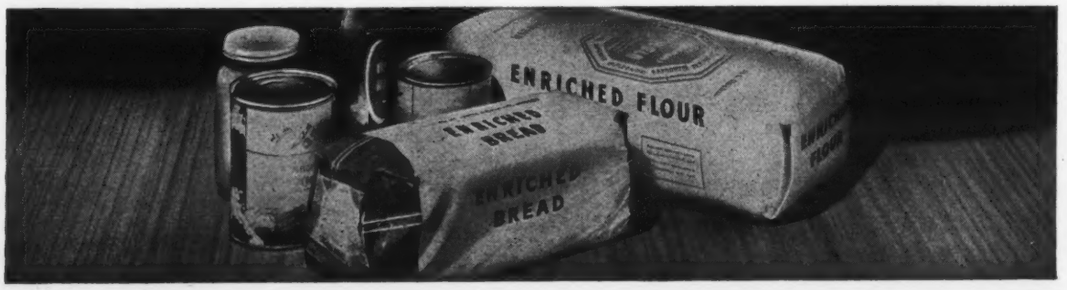

Modern Magic

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WHEN our men were going into Naples, a typhus epidemic was starting in the city. The army set up 42 delousing stations and also went down into the caves beneath the city where people took shelter against bombing, to dust them with DDT powder. We treated several million people in Naples in a few months and smashed the epidemic. As a result, not one American soldier died of typhus

In 1942 the Surgeon General's office first saw the potentialities of DDT. Two medical officers were taking some DDT powder to an isolated detachment of our troops. They were captured by some Bedouins and taken before their chief. It was a pretty tight spot for the officers. In desperation they told the chief that they were carrying a magic powder. The chief wanted to see it so the medical officers dusted his robes with DDT. The Americans said that in a few minutes the chief relaxed and smiled and the next day he set them free.

For the first time in that chief's life he had enjoyed a good night's sleep.

Thanks to DDT, malaria is under control wherever our men are fighting. We supply it in the form of an oil spray which can be applied to places where mosquitoes breed. In addition, where soldiers are living in tents or barracks, DDT is applied to the walls. The minute a mosquito comes in contact with DDT, he gets what the men describe as a double dose of delirium tremens. The insect becomes nervous and agitated and flies around drunkenly in a circle before it becomes paralyzed and dies.—Lt. Col. A. L. Ahnfeldt, Office of the Surgeon General, U. S. Army.

——BREAD IS THE STAFF OF LIFE——

The growing popularity of automatic grain unloading shovels probably will be a factor in the reduction of accidents occurring while grain cars are being unloaded.

Milling 60 Years Ago

Hazards Involved in Changing Jobs

By Louis H. Gibson

Editor's Note.—The accompanying article is reprinted from Mr. Gibson's now celebrated book, "Gradual Reduction Milling," which was published by The Northwestern Miller in 1885. The author was a leading milling technologist during the period of transition from buhrstone milling to the use of roller mills. In this article, however, he leaves technical problems to discuss other problems connected with millers and milling. Millers of today probably will agree with the majority of the statements made by Mr. Gibson 60 years ago.

IT is not an unusual thing for millers to change jobs. There are many reasons leading to this. Naturally enough it frequently happens because of the desire to do better. The mill owner, in some instances, may think it to his advantage to dispense with one man's services and employ another. Maybe he has had an old and trusted miller in his employ for a long time, under whose administration the mill has always kept pace with that of his neighbors, and altogether has done a good job and rendered good service.

But some little thing, perhaps a personal matter, may cause a rupture which dissolves the business relations. We all know that such things do happen, and, when they do, the mill owner begins to cast around for another miller, and if it is a head or boss miller who is wanted, he considers the reputation of the various men within the circle of his acquaintance. He finally settles on one, and the negotiations are closed.

Of course, it is flattery to be called upon or to be selected from a number of applicants to take such a position when the question of merit and reputation has been considered. At the same time it is a dangerous thing to make a change—dangerous to the miller and the mill owner alike. As said before, the miller was selected because he had been doing good work. Of course he is anxious to preserve his good reputation, and while the mill to which he comes may have been doing equally as well as he was able to do, he is inclined to look upon it with suspicion.

He looks around quietly at first, does not have much to say in the way of opinions, but his mind is constantly recurring to his last position, and the way he did things there, and while the ultimate result is all right, the means or details do not strike him pleasantly. In the course of time he suggests one little change or another, and explains it so clearly or rationally that the owner is impressed with the benefits which may be derived from it, and allows it to be done.

When he asks how it is doing after this change has been brought about, his miller, whose mind is filled with hope, does not allow himself to be disappointed, and he so explains it to others interested and with the honest belief that he has done a good thing. This makes it easier to bring about other changes and alterations with the idea, not expressed or perhaps realized in the mind of the miller, to have the mill like the one he had left. If the conditions were all the same, if the machinery were the same, this thing might be accomplished without harm; but here is a mill representing another man's ideas, which the miller now in charge wishes, with good intentions, to make accord with his own.

But he does not do it at once; he does it gradually. It would be better if he intended to do it all, to bring about the change all at once. But this gradual mixture with the methods fo his predecessor means nothing more or less than a constant series of experiments, some of which are almost sure to fail, and considering that everything was in good condition before, and that comparisons may be made to demonstrate to the disadvantage of these experiments,

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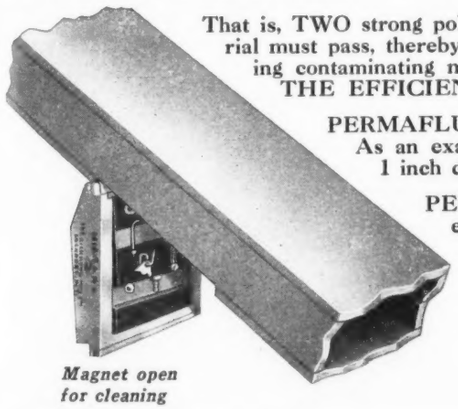

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our new man is treading on dangerous ground.

If he had a bad case to work out, if he had taken hold of a mill which was in a bad and unsatisfactory condition, he could afford to do this; he could afford to try to bring this mill to a point where the methods were like those in his former place. Here, where the conditions are so different, he has no such favorable ground to work in. The first time that he makes a misstep, it is backward, one which brings positive discredit to him —suspicion. It is easy to see where such measures in such a place may lead.

The time is past when a miller has to sustain his position by his ability to make changes in keeping with the spirit of revolution which was once so prevalent. It is possible for him to gain credit by regularly running a mill, by taking what he has and doing his best with it. If the flour is not satisfactory and the proprietors so express themselves, then is time enough to make changes with the view to better results.

They will find this out soon enough, and then there is safety in changes; otherwise there is not, to the miller. Without such reasons, he will always be regarded with suspicion and distrust, even if it be not expressed. His successes will be taken as a matter of course in fulfillment of his promises, implied or otherwise; his failures will be directly charged against him, with no credits to balance.

The best machinery, the best program and the best managed mills do not necessarily do the best work with the best wheat. Everything may be ever so complete, but if the miller fails to comprehend, or for any reason to take advantage of that which is set before him, he will fail in doing good work. It is with the most delicate arrangements and adjustments for making distinctions in milling matters that the greatest mistakes may be made. With mechanical provisions for recognizing and caring for all the finer differences in the milling of the stock, there is required a mental provision for distinguishing the uses and necessities for such arrangements.

The failure to provide such an auxiliary is the failure of the machine itself. There is no object in having a complete mill unless an equally complete man be chosen to run it. If the finer distinctions be made in the reduction of the stock and its ultimate grading and separations, it is only possible to have these distinctions preserved by operating the machines in the spirit and intention of the original designer.

It is a frequent experience of mill builders that the mills with which they take the most pains, those which they study the most carefully, and in which they make the most elaborate preparations for good milling, give them the most trouble. There is in mind a mill which was planned by a prominent and capable mill builder, which failed to such an extent as to reflect discredit on the firm which built it—not because it was inefficient in any degree, but rather because it was too good, too complete for the men who were to run it. They were not organized in a way to recognize or use its better points.

One feature of this mill was the gradual reduction of middlings. These men could not see why these middlings should not be "crushed down" at once, and crush them down they did, and the consequence was that when they came to the place in the mill where they should have had their best middlings, they had a lot of flat, feathery stock which made soft, flat, gray flour, instead of making the best flour in the mill. The builder of this mill was enough of a politician to see a way out of his trouble. He took out that gradual reduction apparatus, as far as it applied to the middlings, and put in millstones, and the result was that the owners were happy. They were confirmed in the belief that smooth rolls would not do for the reduction of middlings, and that the buhrs made whiter, more granular and altogether better flour.

A very large proportion of the flour made in this country is manufactured by very simple machinery and methods. Most of these mills will at one time or another be improved. There will be additions made with the view to the improvement of the quality of the product and having in mind at the same time, a reduction in cost; at least this latter should always be a part of the scheme. More often than otherwise the idea of improvement in the quality is considered so seriously that the question of cost of production is lost sight of, and while the flour may be better, its cost is materially increased. The feed is richer and the miller eventually is poorer.

The real improvement in milling does not consist solely of bettering the quality of the flour. That is one side of the question, and a small one. There is no improvement in milling where the main question is not affected in favor of the owner. By this is meant that there is no improvement where the miller does not get more money out of his wheat by his changes. For if he does not, why should he change? There is nothing in it to him in having better machinery or cleaner flour regardless of cost than does his neighbor. That would be a matter of sentiment, and

(Continued on page 23a.)

TO COMPANY PRESIDENTS:----------

Here's Another
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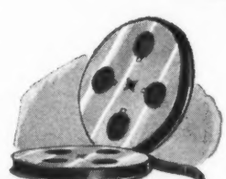

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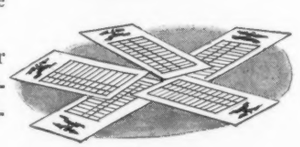

Passing this particular ammunition requires that you reappraise your own company's Payroll Savings Plan. Have your own War Bond Chairman contact the local War Finance Committee—today! They will welcome the chance to discuss this new program with you.

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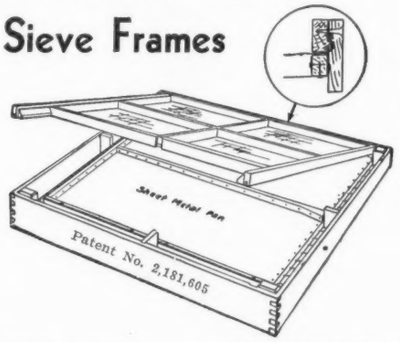

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Flour Particle Size Determination by the Sedimentation Method

By W. L. Heald
Manager
Products Control Department
The Shellabarger Mills

DETERMINATION of flour particle size by the gravitational method has been tried by a number of workers with more or less success. The apparatus was cumbersome and somewhat complicated, and, therefore, has received very little attention except by research workers and then only on special problems.

The need for a simple and practical method has been expressed by millers and chemists alike for several years. The customary method of determining flour particle size by the use of silk sieves of standard mesh, shaken for some definite period of time in some form of laboratory sifter, has proved very unsatisfactory.

All who have tried checking bolting results from day to day can testify to their inaccuracy. Many investigations have been made, and the findings have shown that the bolting cloth procedure, even under ideal conditions, is very inaccurate. Air separation has been tried, but has proved very difficult to control in small scale laboratory equipment. The most promising procedure, then, appears to be the sedimentation method.

The writer has been very much interested for many years in some method of accurately determining particle size of flour. Recently an apparatus and a procedure for determining particle size of clays and cement were suggested as a possibility. The apparatus is known as the Andreasen sedimentation apparatus

Fig. 1—Andreasen Sedimentation Apparatus

(Fig. 1). Since no published data on the use of the apparatus could be found, a search for a suitable medium, in which flour is practically insoluble and of proper viscosity, was undertaken. As a number of products were tried and no one product seemed to meet the need, a mixture of two was found to be satisfactory; namely, carbon tetrachloride and cleaner's naphtha. In this mixture a rather wide range of density can be obtained. By mixing the two, which are completely miscible at any temperature, a solution can be made in which flour is only very slightly soluble. The only real hazard encountered in using this solution is that it must be handled in a fume hood since the vapors are toxic when breathed for any length of time. It is possible to use a light gas mask which will absorb the vapors, but this is rather uncomfortable. The fume hood was found to be the more desirable.

Explanation of Apparatus

The apparatus, as illustrated, is very simple and easy to operate. To obtain accuracy it was found that a temperature of 30° C. gave the best results. The fume hood is so arranged with temperature control that the apparatus and all solutions may be brought to 30° C.

The Andreasen apparatus is a refinement of the ordinary pipette method for subsieve grain sizes. By

(Continued on page 24a.)

RIBOFLAVIN FOR ENRICHMENT OF POULTRY FEEDS

All authorities in the field of animal nutrition are agreed that it is of the greatest importance that poultry feeds contain adequate amounts of Riboflavin (Vitamin B_2, sometimes termed Vitamin G). Inadequate supplies in the feed of laying and breeding hens lead to decreased egg production, low fertility of the eggs, and high mortality rate and high incidence of curled-toe paralysis in the chicks produced. Insufficient content of this vitamin in chick feed results in slow growth, curled-toe paralysis, and high mortality.

Many of the feed supplements formerly used as Riboflavin sources are now in short supply, but fortunately ample amounts of the pure crystalline vitamin are available. But what is of even greater importance — simple arithmetic will show that the pure Riboflavin is by far the cheapest source of this vitamin.

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Personnel Management

(Continued from page 3a.)

velop their own abilities and achieve adequacy in facing their problems. The modern personnel manager, as a result, frequently looks and acts unlike his predecessor of a decade ago. Formerly, the personnel man was all too frequently a backslapping gladhander, with a lot more weight around the middle than at the top. Now-a-days, he looks more like Cassius.

The same type of change is apparent also in the labor leaders with whom the manpower managers frequently deal. Labor leadership has undergone great changes, and a selective effect among labor leaders is everywhere apparent. War, with its "no strike pledge" is a difficult time for the lightheaded and heavy-fisted type of labor leader. He has been replaced in numerous organizations by a more far-seeing, realistic, and statesmanlike officer, one who can explain War Manpower Commission directives and War Labor Board delays to the membership, who can do an intelligent job in a hearing or before an arbitrator, who can organize the facts and prepare an effective union brief, who can sit across the table from management and hold his own on the basis of fact and logic. Incidentally, if management is shrewd and if the public is alert, both will extend a strong helping hand to these labor leaders who have maintained their positions and survived the war experience. They can play a most important part in postwar industrial and community relations. It will be tragic, indeed, if demagogues in the movement unseat them. The whole nation will lose from such an upheaval.

One of the major changes in labor relations occasioned by the war is, of course, the limitation placed on wage increases by the National Wage Stabilization program. Wages cannot be adjusted at will; they must be varied only in accordance with established stabilization policy. Out of the administration of this program, several lessons may be learned. One of them points to the fact that even small errors in rate setting may occasion a great deal of dissatisfaction and unrest.

Wage Differentials Important

For the wage stabilization program has repeatedly shown that differentials between occupational rates, rather than the absolute level of such rates, are of major importance to workers. They judge the appropriateness of their pay by reference to its relationship to that of other jobs rather than in absolute terms.

As a result, there has been a marked increase in interest in job evaluation, job rating, and the whole function of wage and salary administration. Both management and organized labor have sought to iron out intraplant and interplant inequities. Moreover, since such adjustments are among those permitted by the wage stabilization program, a lot of improvement in such interrelationships has resulted. Wage structures in industry have come to be more sensible. Because the situation has called attention to the many haphazard relationships in which jobs of lesser value have drawn pay equal to or exceeding those of greater value, however, we may expect increasing and continuing interest in job evaluation and revision of rate structures.

Job evaluation implies a careful job analysis and a resulting job description. The whole stabilization program has thus tended to encourage more general use of job analysis. Every firm that has filed a form 10 asking permission to adjust wages has learned the necessity for job descriptions. And many firms have had their requests refused or modified because their job descriptions did not accurately portray the work being done. As a result, both management and organized labor have a direct interest in improving and extending job analysis.

Incentive Wage Plans

Because the stabilization program has frequently prevented any upward adjustment in hourly rates, many managements have turned and are turning to incentive wage plans. By paying employees by the piece or by the ton, their earnings can be increased within the provisions of stabilization regulations. Hence, many firms that have formerly operated on the basis of hourly rates are now using or are contemplating some type

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of incentive plan. The War Production Board and the War Labor Board have co-operated in developing standards for such plans which are available to all interested parties.

Another result of the stabilization program is the emphasis in current collective bargaining on so-called "fringe issues." Because upward revisions of wage rates as a whole are generally impossible, unions throughout the country have followed the pattern widely publicized in connection with the steel industry in seeking shorter basic work weeks, longer vacations, shift differentials and night shift premiums, guaranteed wages, life insurance, sick leave and other similar concessions. These proposals, formerly regarded generally as "trading points," have attained sufficient significance so that, if management refuses them, they frequently become disputed issues and are submitted to the War Labor Board for adjudication.

Similarly, in numerous recent negotiations, representatives of labor organizations have asked for automatic progressions within rate ranges. By thus providing for regular increases based on length of service rather than merit, they seek to gain the maximum in wages under the stabilization policy. Management's opposition to the elimination of merit as a basis for such advancement could be anticipated. An interesting compromise effected in some cases permits automatic progressions to the midpoint of the rate range with merit increases in the remainder.

Another variant of these developments proposes reopening clauses in collective agreements, which permit either party to reopen the contract, by giving 30 days' notice, on the subject of wages. Management has generally opposed this departure also, on the grounds that it makes advance calculation of costs impossible and that it violates the spirit of a contract. Labor should be willing, management argues, to await the termination of the agreement before demanding changes.

Need for Standard Methods

All of those who have had an opportunity to participate in the settlement of labor disputes during the war have been repeatedly impressed with the need for including a systematic grievance procedure in all labor agreements. Such procedure should include a formal grievance committee within the plant, and it should provide for final or terminal arbitration if a grievance defies settlement by other means. These provisions are now becoming increasingly frequent and may well carry over into postwar agreements.

Similarly, those engaged in settling wartime labor disputes have come to recognize the tremendous significance of facts in industrial relations. In literally hundreds of cases, issues in dispute arise from questions of fact. Thus, one side argues that night shift differentials are an established practice in the industry and area. The other side disagrees. Neither has sufficient evidence to convince the other. Again, management may oppose sick leave on the ground that employees generally abuse such privileges, or labor may object to paying a portion of the cost of settling grievances, arguing that management always pays all such costs. The answers to such questions are facts. They can be available only if someone takes the trouble to study, collect, analyze and classify them.

To meet such situations, many of us are planning now the provision of facilities to supply such facts in peacetime. The University of Minnesota, for example, has already instituted a continuing research program to provide such factual information for labor, management and the public in the future.

These, then, are some of the major changes that have characterized our industrial relations during the war. Both management and labor have recognized the need for superior leadership, and their leadership in the industrial relations field has improved greatly since Pearl Harbor. Both sides have recognized the high significance of manpower as a basic natural resource and the importance of improved working and living conditions. The war with its wage stabilization program has occasioned many changes in current collective bargaining. Special emphasis has come to be placed on comparative wage rates, on job description and job evaluation, and on differentials between the wages paid on various jobs. Similarly, labor organizations have come to emphasis the "fringe" issues, vacations, shift differentials, and others. Finally, war has taught significant lessons on the value of systematic grievance procedures and of facts in industrial disputes. These are some of the significant changes in modern labor relations that have appeared during the past year. All of them emphasize the basic and elementary significance of human resources and human relationships in our modern society.

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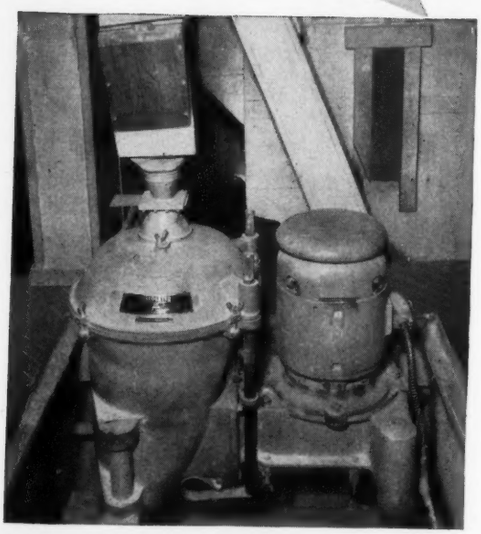
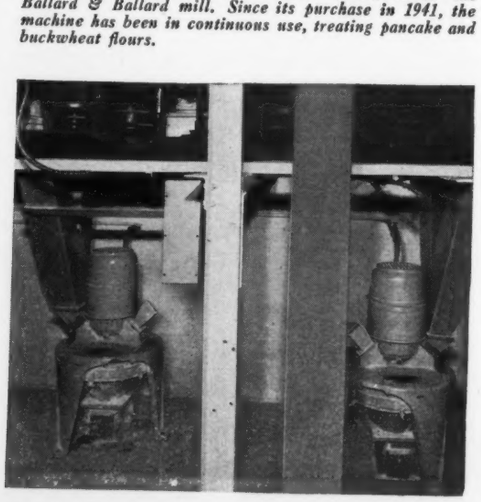


THEIR FIRST! *The "ENTOLETER" above is in the Ballard & Ballard mill. Since its purchase in 1941, the machine has been in continuous use, treating pancake and buckwheat flours.*



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Hazards Involved

(Continued from page 18a.)

not business, which latter is the side of this question which is being considered.

In times past when there was great strife and great activity because of the radical changes in methods, there was more advantage to be gained by superiority in quality and, in a measure, regardless of cost; and in the enthusiasm of those times, so prolific of changes, this matter of sentiment and personal pride took a rank growth along with other things. But a little time will straighten out all this. The time is past when a few mills will monopolize the trade for a superior article of flour. The number of mills making such flour is daily increasing and the names which stood up like monuments in the flour trade are less conspicuous because of the strife, activity and skill of their competitors. This change alters the character of the competition.

In the future it will be more a matter of cost than of quality. Not that quality will be any less requisite, but because it will not be so serious a matter with the buyers to get the quality they desire. This state of affairs will call for serious consideration in the cost of manufacture. The matter of yield and percentage of the various grades will force itself prominently into view.

Static Electricity

(Continued from page 5a.)

instrument. When static electricity charges are discovered, we proceed to eliminate them by proper grounding. Should the charge be located on a belt, for example, we install ground brushes on the upper and lower runners of the horizontal belt at a point about 18 inches to two feet after the belt has run around the pulley. In some instances it is also necessary to ground the shafting. Long belts require several brushes.

It has also been my experience that when the atmospheric humidity is extremely low, such as on a cold winter day, static electricity is made or developed on machinery that does not evidence the same conditions during other seasons of the year. This, in my opinion, indicated the importance of making static electricity tests all through the winter season. Also, mill and wooden construction type buildings are more subject to static electricity than other types of construction.

Other static electricity producers such as reels, bucket elevators, fans and dust-collecting systems should be grounded to building steel or to water lines by the use of flexible stranded copper cable, with both ends of the ground cable soldered in position.

It may be of interest to you for me to mention an experience relative to static electricity being discovered on the wooden frames of a set of reels. All the usual and customary means of grounding to discharge the static electricity were employed without success, and as a final resort the complete wooden reel housings were painted with aluminum paint which, due to its metallic base, completely dissipated all traces of static electricity after this painting had been done.

It is my desire to warn you that when grounding is done, frequent inspection must be made to see that the ground wires have not been broken, otherwise the possible ignition hazard of static electricity is increased.

v v

Editor's Note.—Mr. Alger, author of the foregoing article, is a member of the National Fire Prevention Association's dust explosion hazards committee. The article was adapted from the text of an address made by Mr. Alger before the foods section of the National Safety Council.

——BREAD IS THE STAFF OF LIFE——

The Earliest Machine

The shadoof was perhaps the earliest device or machine based on the lever as a means of power transmission that was devised by man. The shadoof consisted of a pole hung on a post in such a way that it could be swung easily up and down or around. From one end of the pole a bucket was suspended, while at the other end was a weight large enough to overbalance the weight of the bucket when filled with water. In operation the shadoof was installed near a stream or well and the operator merely lowered the bucket into the water by pulling downward. The filled bucket was automatically lifted by the shadoof and the workman swung the device to the point at which the water was to be poured. The shadoof was, in fact, the first crane and was in use by the inhabitants of the Nile Valley as early as 3,000 B.C.

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Size Determination

(Continued from page 20a.)

this method it is possible to make determinations of particle sizes consisting of grain sizes smaller than (r) as a function of the size of the grain (r). The apparatus consists of a glass cylinder about 6 cm. in diameter; it has a capacity of approximately 550 ml. when filled to the upper mark on the scale. It is provided with a ground glass stopper through which passes the stem of the pipette. The pipette extends 20 cm. beneath the surface of the suspension and about 4 cm. from the bottom, the tip being at a level of the zero mark on the scale while the upper surface of the suspension is at the 20 cm. mark. The pipette has a capacity of 10 ml. and is provided with a three-way stopcock and a spout for drainage into a weighed evaporating dish or beaker.

Method of Making Test

A 15-gram portion of flour, moisture free, is weighed into a 250 cc. beaker. A small amount of the carbon tetrachloride-naphtha mixture, sufficient to transfer it to the sedimentation flask, is poured on the flour. After rinsing the beaker to transfer all the flour to the flask, the solution is brought up to the 20 cm. mark. The pipette is put in place, and the solution and contents are mixed thoroughly. At this point the time is taken as the initial time, and samples are withdrawn at definite intervals. Instead of evaporating to dryness, it has been found expedient to use a weighed No. 4 Whatman filter paper and draw directly to the filter paper. There are two reasons for this. Firstly, the solution can be used over again after filtering, thus avoiding waste. Secondly, it is much quicker to dry the filter than to evaporate several cubic centimeters of solution. The values obtained represent the percentage by weight of the total flour, the grain

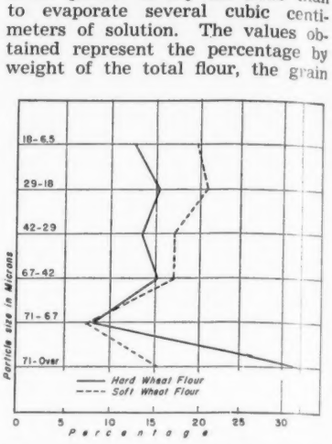

Fig. 2—Percentages of different particle sizes of two types of flour as determined by the sedimentation method.

size of which is smaller than (r), where (r) is the radius in microns

$$(I)\quad r = 2739 \frac{n\,h}{(D-d)\,tg}\,\frac{1}{2}$$

where (r) is the radius in microns of a sphere of density (D) falling with uniform velocity $\frac{(h)}{(t)}$ (cm. per minute) through a fluid of density (d) and viscosity (n) poises in the

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gravitational field (g) of 980.3 dynes. Andreasen found that Stokes law could be applied to angular or cubical particles of the same weight as spherical particles by calculating the grain size as the edge, length or width, of a cube of the same volume as a sphere of radius (r). His grain sizes conformed to the results of sieve analysis. Therefore, the transformation may be accomplished by multiplying the above equations by 1.612. At constant temperature with a given powder and liquid the equation is reduced to the form

$$(II) \quad r = \left\{ 2739 \left\{ \frac{n\,h}{(D-d)\,t\,g} \right\} \right\}^{\frac{1}{2}} \times 1.612 = K \frac{h}{t}^{\frac{1}{2}}$$

where K is the calculated constant and (h) and (t) are measurable. With the solution of wide range in (d), any number of grain sizes can be determined. Grain sizes from 154—1.5 microns can be determined with a solution of carbon tetrachloride and cleaner's naphtha that gives a (d) of 1.2658 and viscosity of (n), .009079 Poise. Substituting in formula I, the values for (D) equal 1.410, (d) equal 1.2658, (n) equal .009079, formula No. II becomes

$$(III) \quad r = 35.4 \frac{h}{t}^{\frac{1}{2}}$$

The factors (h) and (t) are controllable. The following ranges of grain sizes are used:

1 Grain sizes larger than 71 microns; 2 between 71-67; 3 between 67-42; 4 between 42-29; 5 between 29-18; 6 between 18-6.5 microns.

According to data published[1], the bolting cloth opening of 25xx silk is about 33.5 microns; the 20xx silk is 39 microns; 16xx silk is 46 microns.

If the above range of grain size is not satisfactory, any desired size between 154—1.5 microns can be obtained by changing (h) and (t) to give the desired grain size.

Figure 2 illustrates the results obtained on two flours of different types. Results of duplicate tests vary less than 1%, which is certainly a great advantage over the bolting method.

The sedimentation method herein described may appear to be complex, but once the conditions have been established, any reasonably skilled technician can perform the analysis.

[1]Max Markley, "Flour Particle Size by the Sedimentation Method," **Cereal Chemistry,** Vol. XI, pp. 654-660.

—BREAD IS THE STAFF OF LIFE—

What advancement there has been in milling, and whatever advancement there is to be, has and will come from a united experience and an interchange of ideas. The mill that has come the nearest running with closed doors is not the one which has done the best work, made the most money or contained the best help. One man, or a dozen, will not work out the milling problems of the future any more than did the same number in the past.—Louis Gibson in "Gradual Reduction Milling."

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The Rapid Increase of Penicillin Production

PENICILLIN, recovered from fermentation solutions resulting from the growth of a specific mold, is being produced by the American chemical and pharmaceutical industries in ever-increasing quantities to meet the requirements of the armed forces and of the Allies and also for essential civilian purposes.

The War Production Board recently announced that production of penicillin in 1945 will be more than two and one half times the 1944 output, which is estimated at 1,600 billion units valued at $35,000,000.

John E. McKeen, general superintendent of Charles Pfizer & Co., Brooklyn, gave a description of the manufacturing process at a recent meeting of the New York Electrical Society.

He related how, ever since scientists at Oxford University demonstrated the superior antibacterial activity of penicillin over the sulfonamides on certain cases, strenuous endeavors have been made to provide the demand for this therapeutic agent

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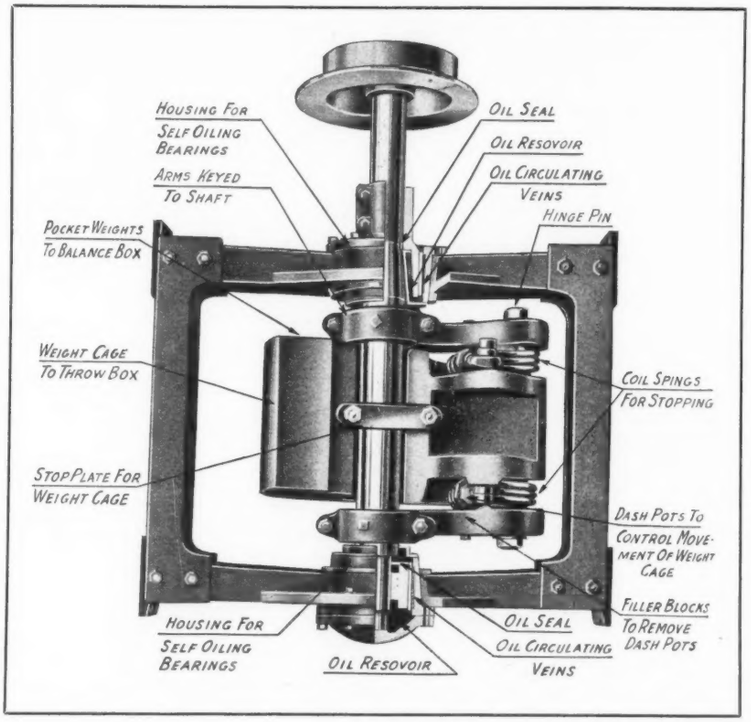

No millers' equipment is better than the mechanism that runs it. The Style "S" ROTOMASTER SIFTER has this highly efficient drive mechanism that ensures perfect circle gyration, constant circulation of oil, pin-point balance and consistent performance. It will pay you to investigate.

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so effective against pathogenic organisms. Mr. McKeen brought out that in an effort to meet the vast need for penicillin, many difficult problems have been encountered which the industry at large has sought to overcome. For example, the fermentation broth used in its manufacture has an extremely low concentrate of 40 parts of the potent substance per million parts of water, and is also readily inactivated by enzymes and a multitude of inorganic and organic compounds, under varying conditions.

Emphasizing the splendid spirit of teamwork and unusual effort shown by all of the men and women of Charles Pfizer & Co., making this company the world's largest producer of penicillin, Mr. McKeen explained the development of the process from the time they made the first commercially available penicillin in this country to the present, offering also a description of the new plant, the operation of which is largely automatic and which currently produces well over 100 billion units of the drug per month. The mold (Penicillium notatum) when grown under optimum conditions and fed a desirable nutrient media, produces penicillin in the fermentation broth within a period of several days.

Following the completion of the fermentation period, it is then necessary to concentrate and purify the penicillin. The first step in this recovery procedure consists in removing mycelia from the broth by filtration. This is followed by absorption of the penicillin on carbon, utilizing a procedure developed in the Pfizer research laboratories. Further purification is accomplished by preferentially removing the absorbed penicillin from the carbon by means of organic solvents. The penicillin is then recovered in a concentrated purified form from the solvents by extraction in suitable equipment with sodium bicarbonate to make the sodium salt. The final solution is sterilized by filtration through a specially designed filter and subsequent steps of filling of the solution into the final serum vial — freezing, drying under high vacuum, and the sealing of the final package are carried out under sterile conditions.

Mr. McKeen laid emphasis principally on methods of operation. In addition, a description was given of both the high-vacuum freeze drying apparatus and that used for a series of operations entailed in packaging. Further, it was pointed out that the penicillin undergoes rigid tests which must prove it to be pyrogen-free, nontoxic and sterile, before the product is considered suitable for injection into humans. The potency of the drug is determined by several methods of bioassay using micro-organisms.

Mr. McKeen mentioned that penicillin appears to be particularly useful against the gram-positive type of bacteria, failing, however, to control most infections due to gram-negative cocci.

Administration of penicillin is generally by intramuscular, intravenous or intrathecal injection. Topical application is probably used to a lesser extent, and it was stressed that penicillin has proved to be one of the best therapeutic agents available today for infections caused by clostridia, gonococci, meningococci, pneumococci, staphylococci and streptococci.

The entire penicillin industry is making great strides toward providing the quantities of this drug required by the fighting forces of the Allies and for essential civilian purposes. Pronounced improvements have occurred during the past year and the fermentation broth holds a much higher penicillin content as a result of an intensified research program which has maintained contact with the Northern Regional Research Laboratories (U. S. Department of Agriculture) at Peoria, Ill., and several university laboratories.

MAGNESIUM—the Baby Metal

MAGNESIUM as a metal has been known for more than a century, but only for about 25 years has it developed as a structural metal. And this is because magnesium as such is quite worthless as a structural material. It remained something of a curiosity, except for its use in flares and for other quick combustion purposes, until it was discovered that, if other metals were mixed with it in various proportions, the alloy gave magnesium a new character and it became a tough, but easily machined, corrosion-resisting metal in every way suitable for construction in which light weight mattered. It takes four pounds of steel, as against one pound of magnesium alloy, for an article of the same size — even aluminum is 50% heavier than magnesium. I do not pretend that the strongest magnesium alloy is as strong as steel, but it is strong enough to give an ample factor of safety in many situations where heavier metals have been used. We are gradually, through research and applied engineering, tailoring our alloys for great numbers of uses for which it was formerly thought the metal was unsuited, and much more gradually we are beginning to discover the place which magnesium holds in the great family of metals.

The public in the past has not accepted new products quickly. Especially was it cautious about changing from known materials to new ones. Andrew Carnegie believed steel was inferior to wrought iron as a structural material and fought steel as long as he could. In human experience, until a comparatively few years ago, weight has always meant strength. It took steel a long while to be accepted, aluminum is not yet wholly accepted and it is not strange that the baby metal magnesium is accepted only in the one industry where weight is paramount—the aircraft industry. But because of the war, people have been learning about magnesium and I would guess that a thousand people today know that magnesium is a metal and not a medicinal, where only one knew that before. That is something.

Magnesium is supposed to be a high-cost metal. On the pound basis, it is high as compared with steel, but it is so light that the weight does not give a proper comparison. Taking volume for volume, the price drops, and on volume, magnesium ingots are cheaper than aluminum ingots. The fabrication of magnesium is not as far advanced as its production, for the single reason that we have never had the volume of business to attain the perfection that comes only from experience and which the other metals have acquired through the years.—Dr. Willard H. Dow, president, Dow Chemical Co.

LET'S GET OUR HEADS TOGETHER

Over Your Postwar Problems

THERE'S one phase of your postwar planning in which we can very likely be of help to you. And that's in packaging your products, *new* or *old.* Your carry-over products, as well as your new ones, will want a new, smart, modern dress.

Deltaseal Packaging will be your choice, chances are, if you have any free-flowing, powdered or granular products to sell at retail. First of all, only Deltaseal Bags have the "easy-pour" spout that consumers like so much... and that means repeat sales. Second, they are designed to handle and stack easily and make excellent displays. They are well adapted to colorful, eye-catching printing. Third, the Deltaseal automatic closing machine makes neat, siftproof closures with speed and economy.

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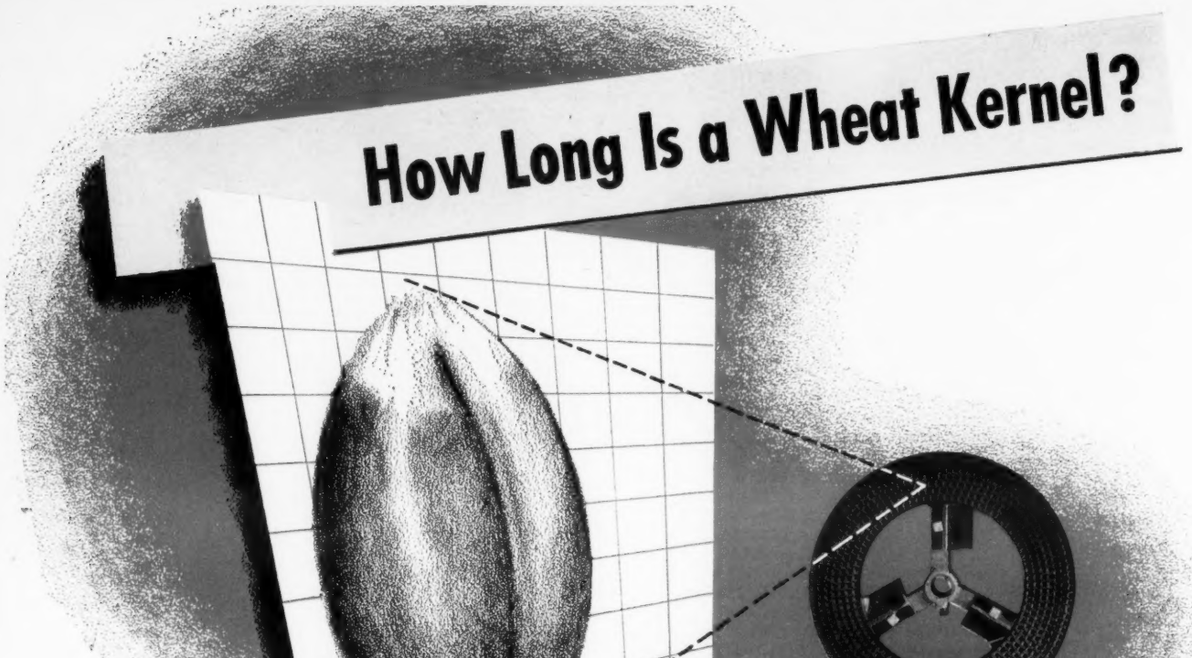

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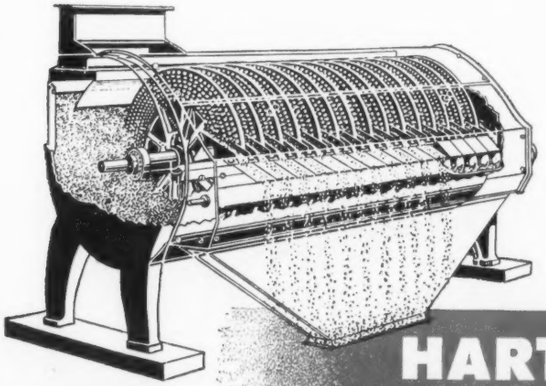

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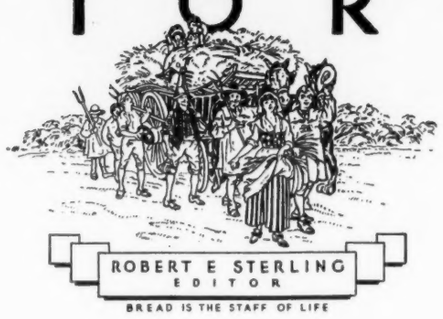
EDITORIAL



"IT'S AN ORDER"

ONE exceedingly hard and probably conclusive fact emerges from the perplexed trade conversations that have followed the announcement of huge new commitments of wheat and flour for relief of the liberated populations of Europe. The requisition comes from the armed forces, and it is an order.

Maybe the job cannot be done, but at least there must be an all-out attempt to do it. The assumption must be that this bread is as much needed as bullets, and it must have the same priorities.

Lately there has been a tendency—and with some reason—to view recent demands upon the home front, particularly with respect to military supplies and manpower, as excessive. The military has become tough. Congress and certain of the civilian administrators in Washington have bristled at this, and first reaction to the call for 240,000,000 bus of wheat (the quartermaster's requirement now has been cut to the less unwieldy dimension of 150,000,000) and 15,000,000 sacks of flour to be delivered overseas between now and the end of September was to brush it off as impossible. But second thoughts on the matter have been decidedly different. The attitude now is that "if it has to be done we'll have to do it."

It would be some comfort to know, of course, that there is no alternative or mitigation—to be taken into the army's confidence far enough to see for ourselves that there is the need and to gain assurance that the deed is possible. Gen. Patton is reputed to have swum a German river under full kit to demonstrate both to himself and to his men that it could be done. Has the army swum its river to determine whether there will be enough cars to ship wheat and flour to seaboard, enough ships to carry it over the ocean, enough storage and transport for distribution at ultimate destinations, enough facilities and manpower to attend to its processing? Have the collateral hazards of this river crossing been surveyed and discounted? In war, men and materials all are expendable, and this time the expendables will be mostly on the home front. The transportation and labor needed for the big job most likely will have to be diverted from the service of domestic needs.

But when all this has been said, the answer remains the same: "It's an order." Apparently the command was phrased at Yalta. It is voiced by army headquarters in Europe. Hunger in the wake of liberation is the army's responsibility for six months, and the army acts in the army way.

It is indicative of the pressing nature of the problem that a large portion of the wheat must be shipped in bags. Obviously this is to facilitate easy and rapid conveyance to the consumer by any and all kinds of transportation that may be available. Overseas port terminals and facilities for bulk handling doubtless are still inadequate.

The wheat must be ground, and presumably the army has found that Europe's milling plant is in condition to do it. Little trade information is available on this point, but it is understood that few of the large mills of France and Belgium were put out of commission. Holland, which never had a large establishment, probably is nearly destitute of milling facilities. Italy suffered considerable loss, but as in the case of France the industry there is mainly in the hands of small operators.

Before the war 15,000 French mills had a rated capacity of about a million 100-lb sacks a day, more than half of it represented in 14,000 of those mills. There were only 55 mills of more than 1,000 sacks a day. The character of Italy's industry was about the same, with a total capacity of 700,000 sacks a day but with an actual production of about half that much. The Netherlands had about 50 mills, only a score of them with more than gristmill capacity. Germany's situation probably is desperate, particularly in the areas now occupied. That some of the relief wheat may be destined for Russia does not seem unlikely, though that has not been officially intimated.

In normal times the flour milling industry of this country would, of course, be concerned about the disproportionately large amount of unprocessed exportation involved in the army order. It is an ancient grievance that Washington economists should think in terms of wheat exports rather than of flour exports. But under present handicaps of labor, transportation and wheat supply—to say nothing of the uncertainties and hazards of the subsidy—this is purely an academic consideration. Until these things are mended mills have need of fewer rather than more orders on the books.

The huge addition to this country's wheat and flour relief program cannot but add greatly to the already great difficulties of the flour manufacturing industry. The shipping problem will be aggravated in spite of all that can be done to solve it. The problem of wheat supply will be rendered more complex, and the huge depletion of wheat stocks carries with it a threat of ultimate scarcity should there be failure or deficiency in the new crop. It is conceivable that these enlarged war needs might result in severely restricted service of domestic trade, the consequences of which would be scarcely less embarrassing to the mills than to their customers.

But when all these troubles and others that might be mentioned have been set down, it should be added that our millers in one important respect are far from a desperate situation. Their full capacity, however limited it may be by circumstances out of their control, is certain to be called for until the end of the war and for a considerable time thereafter. This is more than can be said of many another industry.

• • •

MILK'S PLACE IN BREAD

MILK need not worry. It has established its place in bread, and bakers have no wish or intention to dislodge it. Vitamin and mineral enrichment certainly is no substitute for it, and offers no possible threat to this channel of consumption.

In view of this easily-substantiated situation it is hard to understand the current flurry of opposition from dairy and milk products processors to state legislation that would make vitamin and mineral enrichment of flour and bread mandatory. The opposition, at first vigorous, seems in fact to be diminishing. This doubtless is due as much to recognition of the unsoundness of the contention that the dairy industry can be harmed by the enrichment program as to the great and increasing strength of that movement. The legislative program has been well received in leading dairy states. New York, Indiana and the Dakotas have enacted enrichment statutes, and Michigan, Wisconsin and Minnesota seem favorably inclined. But the opposition has been sufficiently widespread and determined to alarm nutritional leaders and the sponsoring milling and baking trades. Renewed efforts therefore are called for from those who are most vitally interested in the success of this legislative program to insure enrichment's permanence.

In hearings before House and Senate committees of the Minnesota legislature last week spokesmen for the baking industry made it pointedly clear that adding enriching ingredients would not result in omitting milk or milk powder. They declared this idea to be utterly without foundation. Milk has proved itself to them to be a valuable ingredient, which facilitates production and keeping qualities of the loaf, and which above all has made a nutritional contribution to the diet that no baker would wish to abandon. The competitive situation alone would render this impossible. On the positive side of the equation, too, is the fact that milk in bread undoubtedly has increased bread consumption, thus amply justifying its cost to the baker, just as enrichment is counted upon to carry its own weight—and more—in widening the use of flour and bread. Milk brings the riboflavin content of bread enriched by standard formulas and processes above the minimum requirement, but the saving that might be made in enriching costs by eliminating milk would be infinitesimal.

Milk, it is to be suspected, is suffering from what in the nursery is called a "broken nose." A new baby has arrived, and the older child no longer is in complete command of the family limelight. For many years it has been teacher's pet, to put its nutritional position into another figure of speech, and naturally it has not liked shoving over to make a place for bread, newly emerged from the doghouse. But milk still is listed well ahead of bread, you will notice, in the official ratings of food essentials, so there's not too much occasion for jealousy. In fact, there's no reason whatsoever why this traditional pair—bread and milk—should not go on together, uncompetitive and mutually unobstructive, in full friendly and hands-together benefice to man.

• • •

Congressman Taber of New York is not the first to be concerned over what he calls a serious danger on the governmental front—"the enormous quantity of publicity and propaganda artists who are supported on the departmental and bureaucratic payrolls." He says the "quantity" is 38,000. The Department of Agriculture in general and such agencies as National Housing and Community Facilities in particular are among the worst offenders, he finds. "They promote agitation for the expenditure of funds," declares Congressman Taber, "and have become a menace to decent control of the government by Congress."

• • •

STATUTORY ENRICHMENT

THERE is no defense in ignorance of the law (of which we have plenty). But the State of Mississippi evidently feels that in imposing a mandate upon the people it puts a responsibility upon itself. In token of this the State Board of Health has undertaken a public explanation of the new enrichment statute which became effective Feb. 1. The law's purpose is declared in a widely-distributed leaflet to be an effort "to insure better health for the people of Mississippi." The meaning and the why of enrichment are explained; what it will do, and how. Its relation to the South's pellagra is brought into sharp focus. Finally, on the level of the grocer's shelf, the department's spirit of accommodation shows forth with respect to remaining unenriched stocks in the promise that enforcement officers "will allow a reasonable time without prosecution for those who are making an honest effort to comply."

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Canadian Car Shortage Necessitates Curb on Grain Shipments Over Border

Winnipeg, Man.—The Canadian Wheat Board last week outlined a temporary order of the Transport Controller regarding the shipment of grain. These instructions were necessitated due to the present shortage of Canadian and United States boxcars on railway lines. The instructions follow:

1. No Canadian cars shall be loaded with grain, either bulk or bagged, processed grain screenings or grain offals, embracing oat hulls, whole or ground, or other grain by-products, to United States points, either through western or eastern gateways, with the exception of shipments from points west of Fort William and Port Arthur, C.N.R. to Duluth.

2. Shipments of whole grain to United States points may be moved in United States cars when available, and under export permit of the Canadian Wheat Board.

3. Shipments of offal and by-products of all descriptions, including processed barley and oats, may be moved to United States points either through western or eastern gateways in United States, equipment only, when available, and under shipping permit of the feeds administrator.

Canadian Flour Production During January Shows Gain Over Last Year

Toronto, Ont.—Production of flour in Canadian mills in January totaled 2,068,232 bbls compared with 2,041,193 bbls in the corresponding month last year. It was hardly expected that the output in January would have been so high in view of the congestion in transportation facilities which slowed up shipment of flour and grain. In the six months of crop year which closed with January, production of flour amounted to 12,441,364 bbls as against 12,411,151 in the corresponding period of the preceding year.

January exports of Canadian flour, however, showed a heavy falling off as against the same month a year earlier, as a result of the transportation situation. Exports were only 840,479 bbls compared with 1,125,034 in January, 1944. The quantity of flour exported in the six months is still ahead of the preceding year, amounting to 6,123,892 bbls as against 5,934,575 in the same six months of the crop year 1943-44.

The output of Ontario winter wheat flour in January, which is included in the total production figure, was 86,112 bbls as against 22,674 in the same month last year. Total production for the six months amounted to 537,088 bbls compared with 223,399 in the corresponding period of previous year. The increase shown is due to partial failure of the Ontario winter wheat crop in 1943 which resulted in a severe decline in the output of that kind of flour last year. The present year's production is no greater than average.

The quantity of millfeed produced in January increased to 68,088 tons from 65,994 in the same month a year ago while the six months' output totaled 413,321 tons as against 408,040 in the same period of preceding year. All but 5% of this output is made available to domestic buyers. Exports are kept at a low level by restriction.

EXCHANGE EXPLOSION

Vancouver, B. C.—Traders on the floor of the Vancouver Grain Exchange have had a rather chilly time of it lately. However, they were prepared to accept the frigid atmosphere and were thankful that they were still alive.

Just a couple of minutes before 12 noon on March 6 a 10,000-ton freighter loading war cargo, including explosive material, blew up with a series of five explosions and wrecked most of the windows in the 18-story Marine Building in which the exchange is located on the ground floor. The ship was at a dock not more than 200 yards away and the blast smashed in the five big 10x6 ft. glass windows of the exchange facing on the waterfront.

Several members of the exchange together with the staff suffered cuts and bruises from the flying glass when they rushed to the window after the initial blast. Had the ship been laden with dynamite, the explosion might easily have demolished the building as it did in Halifax in World War I when 1,600 people lost their lives. As it was, the Vancouver ship blast broke most of the windows within a radius of 10 blocks. Exchange members are now boarded in but thankful they are still alive.

—BREAD IS THE STAFF OF LIFE—

NAMED TO EXPORT POST

Toronto, Ont.—H. M. MacDiarmid has been appointed manager of the Toronto office of the Canadian Exporters Association, according to an announcement by Alan F. Telfer, general manager of the association. The increase in membership has necessitated branch managers at Toronto and Montreal. Mr. MacDiarmid is a native of Ontario and was educated at Ontario Agricultural College, Guelph. He was formerly a departmental manager with Hinde & Dauche Paper Co. of Canada, Ltd., and before that spent nine years with a firm of chartered accountants in Toronto. Mr. MacDiarmid also holds a degree and for three years has been on the board of directors of the Society of Industrial and Cost Accountants of Ontario. He is a member of the provincial educational committee.

—BREAD IS THE STAFF OF LIFE—

Canadian Wheat, Flour Exports May Drop Due to Car Shortage

Toronto, Ont. — Export clearances of Canadian wheat and flour in terms of wheat from the beginning of the crop year in August to the end of November are reported by the Dominion Bureau of Statistics to have totaled about 101,700,000 bus. In comparison, exports for the first four months of the 1943-44 season totaled 97,000,000 bus. This indicates that this year's exports in that period were running ahead of the preceding year.

It is pointed out, however, that although complete export clearance data are not yet available for December and January, customs data indicate that exports of Canadian wheat and flour for these two months will not exceed 37,000,000 bus, while in the same months of preceding year exports were around 55,000,000 bus. When the figures for December and January appear, therefore, they will bring down the quantity exported in the six months below the level of the same period of previous year.

This reduction in the two months referred to is mainly due to scarcity of railway freight cars and heavy snowfalls in eastern Canada, which handicapped the movement of flour and grain for export.

—BREAD IS THE STAFF OF LIFE—

ROLLED OATS OUTPUT GAINS

Toronto, Ont.—Production of rolled oats in Canada in January amounted to 20,833,948 lbs as against 5,677,046 in the same month last year, while the output of oatmeal was 1,171,050 lbs compared with 735,398 in January, 1944. In the six months of the crop year, August to January, production of rolled oats totaled 107,707,955 lbs as against 58,726,184 in the corresponding period of previous year while oatmeal production amounted to 5,316,019 compared with 3,250,651. The increased output in the present year is the result of substantial export orders.

—BREAD IS THE STAFF OF LIFE—

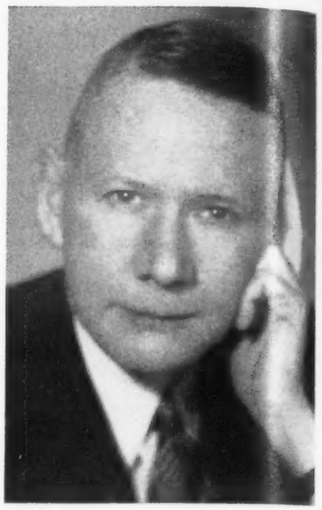
WHEAT STOCKS DROP

Toronto, Ont.—Stocks of wheat at Canadian Atlantic seaboard ports in last week of February amounted to only 820,000 bus compared with 4,200,000 bus on the corresponding date last year.

—BREAD IS THE STAFF OF LIFE—

EXPECT GOOD ATTENDANCE

Toronto, Ont.—The American Association of Cereal Chemists, Toronto Section, is holding its next meeting March 16. The speaker will be O. Roewade, chief chemist of Canadian Breweries, Ltd. He will discuss the technical aspects of brewing. Following the address there will be a conducted tour of the brewery which is one of the best equipped in Canada. An election of new officers for the 1945-46 season will take place at this meeting.



TORONTO MERCHANT — R. C. Pratt of Toronto has in recent years built for himself a prominent place among those who carry on in domestic and foreign markets as flour, feed and grain merchants. He entered this trade following the last war with connections among the mills of Ontario, the western provinces and leading importers in the United Kingdom. Although war has disrupted this business as it existed before September, 1939, the governments concerned have utilized the services of those who have an established goodwill in the flour exporting trade. Accordingly, this firm is carrying on as usual, and will be actively in the trade again when war is a thing of the past and direct relations between Canadian flour shippers and their connections abroad are re-established.

—BREAD IS THE STAFF OF LIFE—

EXCHANGE ELECTS

Winnipeg, Man.—Rupert C. Reece was elected chairman of the Shippers and Exporters Association of the Winnipeg Grain Exchange at the annual meeting held last week. Henry Gauer was elected vice chairman, and George S. Mathieson, secretary-treasurer. The executive includes K. A. Powell, C. Gordon Smith, W. H. Pope and W. J. Dowler.

—BREAD IS THE STAFF OF LIFE—

EARLY BIRD BREAKFAST

Toronto, Ont.—The Allied Trades of the Baking Industry (Canada), Inc., will again entertain delegates to the conference of the baking industry which is being held at the Royal York Hotel, Toronto, on April 17 and 18, to an Early Bird breakfast. This has been a feature of the conference for some years. Other forms of entertainment for delegates will be provided by the Allied Trades.

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It pays to pick the right cake flour! Average flours really cost more than top quality flours like ROYAL FLUFF-EAT-A, which produces more finished cake per pound of flour. You get a richer, moister, longer-keeping cake with ROYAL FLUFF-EAT-A.
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TRIPLE XXX FINE GROUND
ALFALFA MEAL
Ideal for Poultry Mashes
THE DENVER ALFALFA MILLING & PRODUCTS CO. Merchants Exchange, St. Louis, Mo.
Lamar, Colo.

"Sasnak Flour"
For Discriminating Eastern Buyers
ENNS MILLING CO., Inman, Kan.

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KANSAS' FAMOUS FLOUR
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THE WM. KELLY MILLING CO.
Capacity 2,500 Barrels HUTCHINSON, KANSAS

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Country-Milled from Country-run Wheat located in the very center of the High Protein Turkey Wheat Country.
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Of Uniform and Highest Quality Made From Wisconsin Grown Rye
White Heather Blue Ribbon Rye Meal
Milled by exclusive rye millers to satisfy the demands of the most critical bakers
GLOBE MILLING CO.
WATERTOWN, WIS.
"WISCONSIN MAKES THE BEST RYE FLOUR"

STRATTON GRAIN COMPANY
GRAIN AND FEED MERCHANTS
MILWAUKEE, WISCONSIN
CHICAGO, ILL. ST. JOSEPH, MO. NEW YORK, N. Y.

Stuffed Straights

FROM THE MANAGING EDITOR'S SIFTER

By Carroll K. Michener

MINNESOTA'S RESOURCES.—Minnesota's economic trends are giving public spirited citizens much concern. In recent years there has been a diminution of resources and of economic position relative to the other states. One result has been an ambitious piece of research to uncover the facts and to provide suggestions for remedy. An official body called the Minnesota Resources Commission has been in charge of this study and its findings have been published. Heading the group is James F. Bell, chairman of the board of General Mills, Inc. Mr. Bell has made various public appearances in this cause, among them a large recent luncheon meeting of the Minneapolis Civic and Commerce Association.

Minnesota is predominantly an agricultural state. It has had, and continues to have, a variety of other interests, but the primary influence has been and continues to be that of agriculture. Per capita wealth is decreasing in comparison with the rest of the country. The timber has been cut, the mines have been depleted, agricultural products suffer from long haul handicaps. But the commission is not too gloomy in its view. It says:

"None of these, nor any other of the state's enterprises, are lost causes; all have almost limitless possibilities if their problems are met."

Chief of the stumbling blocks is the tax structure, which is antiquated and out of line with those of competing states.

The product of Minnesota farms has changed materially. Once the country's leading wheat raiser, with a peak of 94,000,000 bus a year, the state now has less than 10% of its farm area devoted to wheat. This has had an inevitable effect upon the state's position as a flour center. Agriculture has wandered far from the cash crop status to concentrate on dairying and livestock.

● **Flour milling** was for a long time Minnesota's leading industry, and Minnesota was the world's milling center. (Now Kansas and New York lead in milling.) Even up to 25 years ago more than 30% of all manufacturing in the state was flour, and at that time there were 300 mills in Minnesota. Today there are only 80.

"Flour milling," states the Minnesota Resources Commission, "is a more or less simple conversion of wheat into flour. Cost of raw materials is a major factor and is affected by tight competition and constant pressure of price at narrow margins. Millers operate at the closest of margins, so that when milling in transit advantages of Minneapolis mills were lost, the increase in freight costs which resulted proved to be a large factor in the decline of the business in this state. Other causes were the drop in Minnesota wheat production, decline in per capita consumption of flour, and unregulated lake rates on bulk commodities. All of which meant a loss in income and employment from milling which apparently will continue, even though major milling companies still continue to maintain their headquarters in Minnesota. Sentiment and loyalty have been large factors in keeping such offices here, against seeming advantages in other states."

The commission makes no specific suggestion as to rehabilitating Minnesota's flour industry, but its overall recommendation is that the state should enter fields of "advanced" or "preferred" competition and concentrate on the manufacture of finished goods from Minnesota products.

The statistical history of flour milling in Minnesota is indicated by the following table, compiled principally from library records of The Northwestern Miller:

	No. mills	Daily Capacity bbls	Calendar year production (000's omitted)	Crop year production (000's omitted)*
1944.....	96	71,180	14,860	19,621
1943.....	96	72,102	14,580	17,828
1942.....	97	72,102	12,153	11,639
1941.....	109	73,947	11,244	10,986
1940.....	109	73,947	11,154	11,510
1939.....	126	89,742	11,884	11,969
1938.....	129	89,917	11,646	11,284
1937.....	131	101,692	10,980	11,221
1936.....	133	100,437	12,726	13,159
1935.....	136	104,580	12,012	11,534
1934.....	124	109,035	12,903	13,276
1933.....	125	110,285	13,314	13,761
1932.....	164	130,700	.....	15,049
1931.....	172	137,350	.....	17,867
1930.....	181	141,085	18,505	18,876
1929.....	160	143,050	19,927	20,711
1928.....	176	151,135	21,507	21,663
1927.....	206	151,485	20,834	19,901
1926.....	207	151,185	21,097	.....
1925.....	228	166,855	.....	22,631
1924.....	248	175,630	.....	.....
1923.....	264	182,885	.....	23,685
1922.....	279	182,825	.....	.....
1921.....	287	181,480	.....	23,733
1920.....	300	182,215	.....	27,004
1919.....	298	177,175	.....	28,493
1918.....	268	165,560	.....	23,265
1917.....	268	161,175	.....	.....
1916.....	274	154,445	29,390	.....
1915.....	287	149,095	28,760	.....
1914.....	301	150,975	27,892	27,132
1913.....	320	153,035	28,585	29,382
1912.....	315	152,185	27,179	25,107
1911.....	330	153,915	24,429	.....
1910.....	330	165,715	24,059	.....
1909.....	322	.....	22,771	22,737
1908.....	322	154,785	23,017	.....
1907.....	349	170,947	23,403	.....
1906.....	..	.....	22,253	.....
1905.....	363	158,314	22,365	.....

*For crop year ending in calendar year named.

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Somewhat ticklish, to say the least of its possibilities and implications, is Senator O'Mahoney's S. 10 contribution to the legislative hopper of the 79th Congress. It provides for federal incorporation of businesses and registration of trade associations. Under this bill, a trade association would have to file semiannual reports listing services performed and data collected, publications and letters to members, and full minutes of all meetings of officers and members.

● ● ●

. . . THIS WEEK'S COVER.—The sculptural group on the front cover was created by A. Phimister Proctor in 1927, and bears the following inscription: "Presented to the people of Kansas City by Howard Vanderslice to commemorate the Pioneer Mother, who, with unfaltering trust in God, suffered the hardship of the unknown West to prepare for us a homeland of peace and plenty." The Pioneer Mother is situated in Penn Valley Park on a hill overlooking the business area. One feels that the subjects are viewing with satisfaction the results of their strenuous efforts. It is impossible, however, to escape the impression, as doubtless was the sculptor's intention, that the chief pioneering burden—the heaviest personal sacrifice—was not that of the adventuring male but of his home-yearning mate.

● ● ●

Representative Mansfield of Texas says "our river and harbor program has become practically free from the so-called pork-barrel practices that once prevailed, and from sectionalism and party politics." Maybe so, but if the pork-barrel has been rolled from the halls of Congress it has not yet put in its appearance at the Smithsonian Institute.

● ● ●

. . . ADD CHESAPEAKE.—Once you begin rolling a little pellet of history like that of the celebrated battle between the American frigate Chesapeake and the British ship Shannon, which took place back in 1813, there's no telling how much moss it will collect. At least it is clear that, contrary to the old adage, historical stones, when rolled, really do acquire moss. . . . In an account on this page of how the Chesapeake's timbers came to be built into a British mill, there were given some details of the sea fight that resulted in its capture, and the commander, Capt. James Lawrence, was credited with uttering those immortal words, "Don't give up the ship!" (Jack Benny, of course, still claims John Paul Jones said them.) But now the "Quiz Kids" have muscled in on the radio controversy over this point, and it appears from research conducted in that quarter that the first utterer was Capt. James Mugford of the schooner Franklin, who spoke them as he lay dying on May 19, 1776, during a British attack on Boston Harbor. . . . Among later users of the words, additional to Capt. Lawrence (and entirely excluding Jones), were Benjamin Russell, editor of the Boston Centinel, who is thought by some historians to have coined the phrase when he wrote his account of the Chesapeake affair, and Commodore Oliver Hazard Perry, who is said to have voiced them on Sept. 10, 1813, in the course of his heroic operations on Lake Erie. . . . ANOTHER BIT OF MOSS adhering to our current pebble is the handsome little booklet, entitled "The Chesapeake Affair," which came to this office, in the wake of our publication of the Chesapeake tale, from George A. Zabriskie, the New York flour man. It has nothing to do with the immortal words, but is the story of an earlier episode in the career of the Chesapeake which resulted in the fatal duel between its commander at that time, Commodore James Barron, and Commodore Stephen Decatur, who was a member of the naval board of inquiry which examined into the reasons for the Chesapeake's capitulation to the crew of the British ship Leopard in one of those searches for deserters which precipitated the War of 1812. Mr. Zabriskie's booklet is one of his series of reprintings from bulletins of the New York Historical Society, of which he is an ardent member.

● ● ●

NUTRITIONAL EMPHASIS. — To find out whether the emphasis on the nutritional value of a food helps or hinders its popularity, the Committee on Food Habits of the War Food Administration conducted a six weeks' test in six different cafeterias of the gargantuan Pentagon Building in Washington. The final report, says Tide, "the Adman's magazine," showed that people shied away from foods when their nourishing qualities were highlighted.

The committee used soybean products for the experiment, promoted them to approximately 30,000 Pentagon workers by displaying large, colorful posters in four cafeterias. The posters used these appeals: nutritional value; a U. S. product; "good value for your money"; and the soybean's many uses. The committee ran no promotion in the other two cafeterias. It found that consumption of soy meat loaf rose only in the two cafeterias where the posters had been omitted.

In another test, the committee listed the foods on the menu for one week minus the soy designation, the next week included it. When the word "soy" was used, the consumption of soy products declined, except in the case of soy muffins, which showed no significant change.

——BREAD IS THE STAFF OF LIFE——

EDDY BAKERIES ACQUIRES PLANT AT LA GRANDE, ORE.

The sale of the La Grande (Oregon) Bakery, owned and operated by K. J. McWilliams, to the Eddy Bakeries, Helena, Mont., is announced by J. E. O'Connell, president of the latter firm. An extensive remodeling program is under way. The new owners plan to enlarge the plant greatly, as they are enlarging the bakery which they purchased at Pendleton, and plan to include all eastern Oregon in the territory which they will serve.

AT FORT SAM HOUSTON. — **An oven at the Fort Sam Houston bakers and cooks school draws the attention of Lee Marshall (left), who recently resigned as director of food distribution for WFA, Brig. Gen. W. R. McReynolds and a WAC, Lt. Beatrice Broussard. All were attending the AAF food service conference in San Antonio.**

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(Diastatically Balanced)

A very fine, strong, altogether uniform and dependable flour

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Care in Milling
Henkel's
EXTRA FANCY
CAKE FLOURS
Makes them "Easy-to-Handle" in Baking
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THE HENKEL FLOUR MILLS
DETROIT, MICHIGAN

"Sweet Cream"
"Very Best"
Quality Flours
W. J. JENNISON CO.
MINNEAPOLIS, MINN.

VANITY FAIR
TELEPHONE
MARITIME
INVADER
(HIGLUTEN)
"MASTER MILLED"
Spring Wheat Flour
CANNON VALLEY MILLING COMPANY
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The Wamego Milling Co.
WAMEGO, KANSAS
Millers of Kansas Hard Wheat Flour
HIGH CLASS BROKERAGE CONNECTIONS DESIRED

Pulverized Wheat
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Pulverized Barley
Have about 500 tons wheat and barley mixed. Can pulverize at less than separate grain. A few cars wheat and milo mixed, sacked or bulk.
Granular Flour for Distillers
AMERICAN FLOURS, INC.
NEWTON. KANSAS

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MOORE-SEAVER GRAIN CO.
Operating Kansas City Southern Elevator Kansas City, Mo.

The Williams Bros. Co.
Merchant Millers KENT, OHIO, U. S. A.
Specialists Ohio Winter Wheat Flour
All our wheat is grown on "Western Reserve" and bought from the growers at elevators we own and operate.

Victor-Champion-Frost King-Headliner
Family Flour De Luxe
THE CRETE MILLS
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Lyon & Greenleaf Co., Inc.
MILLERS OF
High Grade Soft Winter Wheat Flour
Plain and Selfrising
LIGONIER, IND. NORFOLK, VA.

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Quality Flours
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BAKERS SHORT PATENT
FLOUR
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LABORATORY AND RESEARCH DIVISION
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Steady bake-shop habits; pleasant bread personality; a profitable friend . . .

That is SUNNY KANSAS as you know it, or as you will quickly learn to know it when you use it in your bakery.

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5,000 Sacks Capacity 1,000,000 Bushels Storage
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The Sea Insurance Co., Ltd.
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U. S. Branch Assets.....$4,904,187
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ORIGINATORS OF ALL RISKS
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Policies of this Company are held by all leading millers
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RED WING FLOUR
Milled in Minnesota for Over 40 Years
THE RED WING MILLING CO., Red Wing, Minn.

C. E. Casto

R. L. Nafziger

GOVERNORS—C. E. Casto, Ward Baking Co., New York, and R. L. Nafziger, Interstate Bakeries Corp., Kansas City, were elected governors of the American Bakers Association at the recent Chicago meeting. Mr. Casto takes the place of R. G. Cowan, former president of the Ward company, as governor-at-large and Mr. Nafziger was chosen as a multistate governor. C. J. Patterson of Kansas City was also chosen a governor-at-large.

Mostly Personal

The technical committee of the Packaging Institute has been asked to serve as the industry advisory committee for the quartermaster corps subsistence and development laboratory, according to an announcement by **Walton D. Lynch,** president of the institute. Included in the membership of this committee are **F. S. Leinbach,** Riegel Paper Corp., **Carl Hartman,** St. Regis Paper Co., and **T. R. Baxter,** Standard Brands, Inc.

●

R. W. Upshaw, vice president in charge of manufacturing, Anheuser-Busch, Inc., St. Louis, has been named a director of Packaging Institute, Inc. He will serve as a member of the production division of the institute.

●

Sam Corkran, manager of the Nashville office of Shellabarger Mills, Inc., Salina, Kansas, is making a trip through Florida and Alabama in the interest of his mill.

●

P. D. Hays, southern sales director, Valier & Spies Milling Co., St. Louis, returned last week from a two-week business trip in the South.

●

Joseph J. Boucher, manager of the Milwaukee branch office and warehouse of Russell-Miller Milling Co., is confined to Mount Sinai hospital there following a sudden attack with an ailment that has left local physicians mystified as to its cause. Mr. Boucher's condition is reported as satisfactory.

●

A. L. Jacobson, president of the Arnold Milling Co., Sterling, Kansas, returned from a vacation trip to California. He visited several brothers and sisters on the west coast.

●

D. Wesley Williams was last week presented with a handsome traveling outfit from his many friends among the flour and grain men in Philadelphia, the occasion being his retirement as agent of the Delaware, Lackawanna & Western Railroad Co., after a service of 50 years.

●

Fred N. Burrall, general sales supervisor for the William Kelly Milling Co., Hutchinson, Kansas, returned from an extended visit with the trade in eastern states. He is limping from a fall on the ice in Philadelphia.

●

John Wall, sales manager for the Wall-Rogalsky Milling Co., McPherson, Kansas, was in Memphis, Tenn., on business.

●

New grandfather is **Ed Enns,** traffic manager of the Enns Milling Co., Inman, Kansas. A daughter was born to his daughter, **Mrs. Paul W. Renich,** making her home with her parents, during the absence of Ens. Renich.

●

Frank Waddock, grain buyer for the J. F. Imbs Milling Co., St. Louis, spent a day with Hutchinson, Kansas, friends in the grain trade, while touring the wheat belt.

●

Among visitors in Chicago last week were: **R. H. Hommel, Jr.,** Schultz, Baujan & Co., Inc., Beardstown, Ill; **C. C. Hine,** Globe Mills, Los Angeles; **B. L. Johnson,** Crete (Neb.) Mills; **Elmer W. Reed,** Shellabarger's, Inc., Salina, Kansas.

●

George L. Faber, Chicago manager for King Midas Flour Mills, visited the home office of his company at Minneapolis, late last week.

●

Elmer Fergerson of Acme Mills, Hopkinsville, Ky., visited in Nashville on business last week.

●

J. H. Shollenberger, of the federal research laboratories in Peoria, Ill., visited Kansas City, Atchison and Manhattan last week in exploring the possibilities of powdered live gluten and starch from wheat. Mr. Shollenberger has long been identified closely with the flour industries, and visits many millers on his fact finding trips to determine the values of research at the Peoria laboratory.

●

Ralph C. Sowden, president of New Era Milling Co., Arkansas City, Kansas, stopped in Kansas City this week upon his return from a quick trip east.

●

Carol S. Wamsley, Kelly-Erickson Co., Omaha, visited his relatives in Kansas City last week end after a three weeks' trip to eastern and southern flour markets. He finds many bakers running on short flour rations because of delayed deliveries.

●

H. J. Rode, sales manager, Charles A. Krause Milling Co., and **Arthur Baker,** general manager, Flory Milling Co., Bangor, Pa., were visitors at the offices of David Coleman, Inc., in New York.

●

P. J. Wedge, treasurer, Commander-Larabee Milling Co., Minneapolis, called on the New York trade during a trip through eastern markets.

●

Ralph R. Petersen, branch manager for bulk sales at New York for Pillsbury Mills, Inc., Minneapolis, made a brief business trip to Buffalo.

●

Dr. W. H. Strowd, secretary of the National Association of Soft Wheat Millers, Nashville, is making a trip through the East where he is calling on millers. Before returning home, he is planning to visit Washington, where he will study the flour situation regarding soft wheat millers.

●

Charles C. Reynolds, Oklahoma City, director of sales for the Acme Flour Mills Co., is on a trade trip through the southeastern and seaboard states.

●

Paul T. Jackson, Oklahoma City, secretary of the Oklahoma Millers Association, has returned from Dallas where he attended a meeting of the Southwest Traffic Advisory Board.

●

Fred A. Quigley, of Boston, manager of the New England office of the Russell-Miller Milling Co., was a Minneapolis visitor over the week-end.

●

G. E. Eriksson, manager of the Boston office of Pillsbury Mills, Inc., was at the company's Buffalo office this week.

●

Arthur Cordes, formerly production superintendent for the Celect Baking Co., Boston, has entered the retail bakery field having purchased Brown's Bakery, Everett, Mass.

●

Joseph D. Noonan, head of Carol Bakers, Inc., Worcester, Mass., continues to expand with the purchase of Amidon's Bakery on Highland Ave. in that city. Mr. Noonan's organization now operates five retail stores.

●

S/Sgt. Wilfred Lindgren recently visited the home office of The Northwestern Miller, where he was formerly a member of the editorial staff. Sgt. Lindgren is stationed at Camp Crowder, Mo., and is engaged in psychiatric work.

★ ★ ★ ★ ★

WITH THE ARMED SERVICES

★ ★ ★ ★ ★

Capt. Herman R. Dittmer, El Reno, Okla., is back in the United States in a hospital in Miami, Fla., recovering from injuries received in bailing out of his transport plane over "the hump." The young captain is the son of the late Herman Dittmer, El Reno milling executive and civic leader, and has served 18 months overseas with 61 missions to his credit. He has a number of citations, including the Distinguished Flying Cross, a Presidential Citation and the Air Medal. Two brothers are also serving in the air corps, **Cpl. Henry Dittmer** in India, and **Lt. Carl Dittmer,** a pursuit pilot in England.

★

Fred Borries, manager of the Nashville district of the grocery sales department of Pillsbury Mills, Inc., reports that **Fred, Jr.** (Buzz) has been transferred to Newport News, Va., where he is now with the Newport News Shipbuilding & Dry Dock Co. Although only 32 years old, "Buzz" is a full commander in the navy. His younger brother, Bill, is now a storekeeper, third class, with the navy and is stationed somewhere in the Mediterranean.

★

Robert Richard Anderson, 18-year-old son of **N. G. Anderson,** Chicago manager for the Bay State Milling Co., has been inducted as a midshipman in the Merchant Marine Reserve in the U. S. Naval Reserve. He expects to receive his orders soon to report for his preliminary training.

—BREAD IS THE STAFF OF LIFE—

OPERATIVE MILLERS CANCEL CONVENTION

Association's Executive Committee Action Voluntary—Year Book to Be Published

Kansas City, Mo.—The Golden Jubilee convention of the Association of Operative Millers has been called off by action of the organization's executive committee, it was announced by W. E. McCraith, secretary, March 12.

The convention, Mr. McCraith said, will be held "by mail," with papers prepared by the speakers who had been selected for the program.

Plans are going forward for publication of the year book as usual, and indications are that the booklet will be larger than last year's issue.

The decision to call off the meeting, which had been scheduled for June 4-8 in Chicago, was voluntarily made by the association. No appeal was made to the War Convention Committee for permission.

—BREAD IS THE STAFF OF LIFE—

MICHIGAN PASSES BILL TO LOWER STORED GRAIN TAX

A bill has passed both the house and the senate of the Michigan legislature which would exempt grains in storage from the personal property tax and impose instead a tax of two mills a hundredweight. It is designed to "place the Michigan milling industry in a better competitive position." The house defeated the bill once, but recalled and passed it.

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WHITE SWAN
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GOLD MEDAL FLOUR
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KING'S FLOURS
are Made in Minnesota ... and Nowhere Else
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MINNESOTA ... the state that has made MORE FLOUR than any other state in the Union.
MINNESOTA ... the state that makes the BEST FLOUR in the world.
Buy flour that is guaranteed "Made in Minnesota"
H. H. KING FLOUR MILLS COMPANY
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SEMOLINA
FANCY No. 1
Milled from Carefully Selected
AMBER DURUM WHEAT
AMBER MILLING CO.
MINNEAPOLIS
Cable Address: "AMBERMILCO"

Hart-Bartlett-Sturtevant Grain Co., Inc.
Line country houses in five states
Terminal houses at Kansas City and St. Joseph
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• *Grain Merchants* •
BUSINESS FOUNDED 1852
MINNEAPOLIS DULUTH

Western King Flour
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Pure Soft Winter Wheat Flour
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J. F. IMBS MILLING CO. ST. LOUIS, MO.
Millers of Hard and Soft Wheat Flour
DAILY CAPACITY 2,100 BARRELS

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FAMILY FLOUR — BAKERY FLOUR
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SPECIALTY PRODUCTS
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CONTINENTAL GRAIN CO. MILLING WHEAT FROM EVERY PRODUCING SECTION OF THE UNITED STATES

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Kansas City	Galveston	Kansas City	Minneapolis	Portland
Omaha	Enid	St. Louis	Davenport	San Francisco
Toledo	Buffalo	Omaha	Buffalo	Vancouver, B. C.
		Columbus		Winnipeg

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LAWRENCE, KANSAS
ZEPHYR FLOUR
AS FINE A BAKING FLOUR AS A BAKER CAN BUY AT ANY PRICE
Established 1874 1,500 BARRELS DAILY

LIBERTY FLOUR
GEORGE URBAN MILLING CO., Buffalo, N. Y.

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WANT ADS
... in ...
THE NORTHWESTERN MILLER

Bakers Given Sugar Cut Below "Necessary Minimum" in New Tightening of Rationing

By JOHN CIPPERLY

Washington Correspondent of The Northwestern Miller

Washington, D. C. — Streamlining of the civilian waistline appears to presage style changes for 1945—according to government agency actions and not the fashion experts. With the ominous words — "with civilian supplies of meats, sugar, butter, canned fruits and vegetables at the lowest point since the war began"—OPA announces that starting April 1, allotments of all rationed foods to most industrial users will be reduced and that physical inventories of rationed foods and ration currency buying power will be curtailed. Ration currency in excess of adequate working inventories will be withdrawn.

Bakers' Sugar Cut

Bakers' sugar allotments for the second quarter of 1945 are reduced 5% to 75% of the 1942 base. Similar reductions are ordered for most other industrial sugar users with the exception of ice cream manufacturers who escape this action. Use of sugar by producers of jams, jellies and fruit spreads likewise is maintained at the previous level in order to maintain production of these substitute spreads for butter.

With this action, the necessity for which is unmistakable according to OPA rationing officials, the irreducible minimum sugar use level of 80% of the 1942 base, which was promised the baking industry, goes into the discard. Bakery industry officials note with some small interest that cough drops still get a preferred position as industrial users of sugar, with a use rate of 120% of the base period.

However, no matter how valid this implied criticism may be it appears academic in light of the curtailment of lards and shortening by the baking industry. Industrial users of these commodities are ordered to reduce use of lard, shortenings and cooking oils to 100% of their 1942 use. This rate is approximately 80% of 1944 bakery production level.

These actions taken by OPA prove painfully that WFA pre-election optimism of last year, that most of our food problems were behind us, was unwarranted, a contention vigorously asserted by OPA rationing officials at operating levels but not upheld by OPA Administrator Chester Bowles who, at that time, was cultivating the rarified atmosphere of top policy circles.

Now that the chickens of bad judgment or political opportunism have come home to roost, industrial users of rationed foods will be required to bring their ration currency and bank balances into line with the new reduced allocations. Between March 16 and June 15, 1945, surplus inventories, ration checks, coupons and ration bank balances in excess of authorized use or working inventories will be withdrawn.

Industrial users of sugar and processed foods will be permitted an average 60-day supply of these foods. Industrial users of fats will be permitted an amount equal to an average 30-day supply.

Although this calamity in the rationing program was predicted as early as last September by OPA rationing officials in the operating positions, the first public announcement was made when Mr. Bowles cancelled outstanding unused red ration stamps in hands of consumers, although Mr. Bowles had previously asked housewives to conserve stamps and not to overpurchase.

Here is the way the adjustment will be made in regard to sugar. When an industrial user has an inventory of 5,000 lbs of sugar or ration checks or currency for that amount and his use rate only requires a 3,000-lb inventory, the difference of 2,000 lbs will be considered excess inventory and will be charged to future allotments or may be settled by the industrial user if he issues a ration check to the district office to cover the excess. According to OPA this action will prevent industrial users from drawing on 1945 supply allocations through use of unexpended 1944 ration currency spending power.

Industrial users' allotments of rationed foods are determined by multiplying the number of pounds of each rationed food used in the corresponding period of the base year by the factor set for each type of rationed food. Bakers' base years for sugar and lard are 1941 and 1942, respectively.

The industrial use factor for canned or bottled fruits will be 12 for the second quarter of 1945. During the current first quarter factor of 1945 this industrial use factor has been 20. This factor is determined by multiplying the average point value of rationed canned fruits by a percentage determined by comparing the supply available to civilians in the second quarter of 1945 with that available during the same quarter in the base year.

Amendments to OPA rationing regulations concerning this revised procedure will be issued March 15, 1945.

Bakers Get Supplementary Rations to Compensate for Fat Point Rise

Washington, D. C. — Bakeries and other industrial users of rationed fats and oils will be given supplementary allotments of ration points to permit them to continue the same rate of use of lard, shortening and salad and cooking oils for the remainder of the first 1945 quarter as they had from Jan. 28 to Feb. 25, or before point values for the items were doubled, the Office of Price Administration has announced.

OPA announced that beginning March 7, 1945, industrial users may apply to their local War Price and Rationing Boards or their OPA district offices with whom they are registered, for supplementary allotments of the items.

Since the ration point value was doubled for industrial users, Feb. 25, it was necessary to provide a supplemental allotment of points in order that this class of users be permitted to maintain a level of operation approximating their 1942 level of use.

When points were placed on fats and oils Jan. 28 for industrial users, their purchases of these items were curtailed approximately 20%. The increase in point values Feb. 25, OPA said, was made to slow down consumer and institutional users' purchases of fats and oils, rather than to reduce industrial users' allotments further.

Supplemental allotments to be authorized by local boards or district offices will permit industrial users to operate this month at the rate of about 100% of their 1942 use, the rate of use intended when points were restored in January.

Army Wheat

(Continued from page 9.)

miding troubles when the impact of the overseas movement of food is fully felt. Pacific Coast milling companies are complaining now over their inability to obtain high protein Montana wheat for government and domestic business. Appeals have been directed to the army to request that Canadian wheat be brought into California by boat but the military have shunned these appeals on grounds that purchase of Canadian wheat would touch off political dynamite.

Pacific Coast millers' problems are caused by the inability to get boxcars to move Montana wheat. It is also reported that the army has declined to accept the greatly lowered protein standards of flour made from Pacific wheat exclusively. In this regard it is learned at WFA that the Russians will accept low protein west coast flours although the impact of the army relief program for Europe may make it necessary to delay filling the Russian Arctic program which was estimated at approximately 400,000 sacks of flour to be shipped from Pacific ports in May.

ODT Sees Progress

Office of Defense Transportation officials although still highly skeptical of the completion of the army program say that the rail situation is clearing slowly and that within 10 days may be back to a position prior to the first of the embargo orders. Progress is being made slowly yet perceptibly and after the industry sessions this week and the opening of lake shipping shortly some expedients may be taken which will point a way out of the chaotic conditions which many officials foresee.

Foreign Mills

The unprecedented and unexpected size of the army requests for food for Europe has raised doubt in the minds of milling industry officials over the capacity of foreign mills to grind as much wheat as the army appears to require. Department of Commerce officials conversant with conditions in liberated Europe say that in most instances mills have been left intact by retreating Germans but key parts or key machines have been removed. Requests for replacement of these key units have been received and nowhere is there any grave doubt but that they can be delivered simultaneously with wheat so that foreign mills can operate.

With the news of the military requirements a new light is cast on the recent testimony of Lt. Col. Ralph Olmstead, vice president of CCC, before the House appropriations committee holding hearings on CCC appropriations. He stated that with the ending of the war we would be faced with the greatest food glut in history. Recent developments challenge the accuracy of this statement and until all the details of our relief feeding program are known it is wise to hold judgment on Col. Olmstead's comments, it is said here. Military quarters say that he was speaking before an appropriations committee and he was painting a dark picture to make his point in requesting additional money for price support and subsidy operations.

CCC's share in the army program has been proceeding under instructions sent to field offices on Feb. 23 which instructed these branches to obtain loan wheat wherever located. Subsequently CCC instructed the regional offices to pay owners of wheat as soon as their wheat was taken. Payments of balances of loans will carry interest charge deductions until May 31, 1945, originally the terminal date of the loans.

Canal Barge Problem

Characteristic of the unco-ordinated activity of the interested government agencies, probably as a result of the inadequate understanding of the program, is the inability of CCC to make a decision concerning canal and river barges which could be used at the Albany, N. Y., terminal. The army has requested barge owners to withhold their equipment from other service to be ready for wheat movement but CCC has been dilatory in notifying barge owners that they will use this equipment.

The lack of co-ordination in government at this time, although the program is presumed to have been known at CCC on Feb. 23 when they first notified field offices to act to obtain wheat, is not unnoticed within government circles. One WFA official said last week that someone at top level would have to intercede and bring order into the situation. It is understood that grain officials at WFA who will conduct the industry meeting scheduled for March 15 had only heard of the program indirectly and not officially. This gives rise to the suspicion in some quarters that the army may be setting its sights high expecting to obtain less. This, army officials deny emphatically.

Ice Conditions

(Continued from page 9.)

weather and water conditions permitting, V. L. Ostrander of the state public works department announced. This would be the earliest opening in more than 12 years. The Erie, Oswego, Seneca and Cayuga branches will be open April 2 and the Champlain canal on May 1, according to present plans.

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Prepare for Season

Duluth, Minn.—A number of engine crews have been called to go aboard ships after March 15 to begin outfitting operations in anticipation of an early opening of the Great Lakes navigation season. Interlake navigation is generally expected to get under way at least as early as last year.

An early start is expected in the lower lakes where the new ice breaker, "Mackinaw," has been operating most of the winter. A Coast Guard cutter was breaking ice in the Duluth harbor last week. The ice averaged 22 inches in thickness.

Outside the lake front there is a

field of ice extending approximately 10 miles with an average thickness of 12 inches.

Indications now point to another heavy shipping season on the lakes for grain, iron ore and other commodities. It is expected that all boats in the lake fleet will be kept busy.

Present grain stocks in Duluth are not overburdensome or building up rapidly, due to the boxcar shortage. Considerable boat space has already been chartered for moving grain out of Duluth-Superior elevators after the opening of the navigation season.

Grain supplies in Buffalo commercial elevators March 5 were 19,244,087 bus compared with 20,085,495 a week earlier, the Corn Exchange reported. Grain supplies aboard boats in Buffalo Harbor totaled 7,366,727 bus March 5 against 8,614,754 a week ago. Railroad grain shipments from Buffalo to the seaboard for export amounted to 316,613 bus last week against 241,188 the previous week.

DEATHS

Frank L. Neilson of Minneapolis, vice president in charge of the warehouse division of Cargill, Inc., and former chief engineer of the company, succumbed to a heart attack March 6, in Arcadia, Cal., where he had gone for a vacation. He had not been in the best of health recently, but his condition was not regarded as serious. Mr. Neilson was a past president of the Society of Grain Elevator Superintendents.

Eugene U. Guest, 69, died recently in Atlanta, Ga. Since 1923 he had represented the Fulton Bag & Cotton Mills, Atlanta, as a salesman in North Carolina and South Carolina. At one time he had owned a flour mill in Keutucky. He was a past president and life member of the Piedmont Millers Allied Association.

Jay A. Canfield, at one time manager of the millfeed department of E. S. Woodworth & Co., Minneapolis, when that firm was active, and later with the Fraser-Smith Co. in the same capacity, died last week in Portland, Oregon, where he had made his home for many years. He was 69 years old.

Harry Glenn died suddenly in Birmingham, Ala., Feb. 28. He had lived in Birmingham for many years. He was southern representative for the Meek Milling Co., Marissa, Ill., until that firm discontinued business. He then went with the Gilster Milling Co., Chester, Ill.

Mrs. Maria LeBon Normand, vice president of Norman Bros., Inc., Manchester, N. H., baking firm, died March 7 after a brief illness. She was the widow of George Normand who, with his brothers, Aime and Leonce Normand, founded the company.

Abraham Olender, 69 years old, who was born in Poland and came to Detroit 29 years ago, where he founded A. Olender & Son, wholesale bakery and confectionery supply concern, died March 2. He is survived by the widow, three sons and six daughters.

Emanuel G. Kolb, 75, a former executive of the Kolb Baking Co., Philadelphia, died recently. He was a member of the Philadelphia Real Estate Board.

Thomas Littler, operator of a bakery at Athens, Ohio, for 35 years, died recently following an operation.

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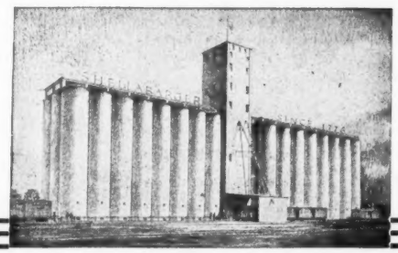

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MARKETS IN DETAIL

U. S. FLOUR MARKETS

THE SOUTHWEST

Kansas City: With mills holding their flour prices firm at the ceiling because of the milling uncertainties that greatly increase the cost of operation, buying was not active in the Southwest last week and sales reached but 35% of capacity, compared with 107% the previous week and 27% a year ago.

The reason for most of the anxiety is the transportation situation, although it is apparent that the mills' books are virtually closed also because of the subsidy limitation of June 30.

Buyers late in the week began to express more concern and many bought at the new high levels. The prices discouraged many prospective purchasers earlier in the week.

Mills show, however, where the situation is not likely to change for some time since the army program will gobble up boxcars for about six months at least, and civilian buyers must get what they need between army shipments.

Operations continue good largely because buyers are asking for their flour to establish a stock in case of slow delivery, the government is ordering its flour out and mills are running what they cannot put into boxcars into their warehouses. This is likely to change any moment, however, and mills that have been shutting down a day or two for want of transportation may soon be idle for longer periods of time.

One mill reports domestic business active, 4 fair, 4 quiet, 4 slow and 6 dull.

Quotations March 10: established brands family flour $4.15@4.35, bakers short patent $3.41, standard patent $3.41, straight grade $3.31, first clears (high protein) nominal $2.75@2.85, other clears $2.10@2.25, soft wheat straight grade $3.30@3.35.

Oklahoma City: Sales of flour last week averaged 70% of capacity, compared to 42% the previous week. The bakery trade took 70% of the bookings and the family trade 30%. Operations declined to 62%, as compared to the previous week's 85%. This decline was attributed to a shortage of boxcars. No change occurred in prices. Quotations, sacks, delivered Oklahoma rate points March 10: hard wheat short patent flour $4@4.30; soft wheat short patent $4@4.30, standard patent $3.90@4.10, bakers short patent $3.35@3.45, bakers standard $3.25@3.35.

Omaha: Some improvement in the general demand for flour in the Omaha market has occurred. Bakeries are the principal buyers. Mills are not pushing sales, as wheat is not moving to market in great quantity and ceiling prices are being paid for milling grades. The car situation has improved somewhat and mills are again operating about full time. Government interest in flour appears light, with reports that Texas and Oklahoma are getting the government business. Bakeries report a continuance of the excellent business they have had for some time.

Quotations March 10: family short patent $3.30@3.50, standard patents $3.15@3.30, bakery short patents $3.30@3.50, high protein clears $2.80@3, fancy first clears, nominally $2.20@2.50; low grade clears, nominally $2.05@2.10.

Wichita: With millers hesitant to push sales while waiting for a settlement of the subsidy problem, orders were booked by most mills as buyers came in. Mill reported sales last week as varying from nothing to 100%. Cars still are difficult to find, which reduced running time, and most of the mills are behind in shipping directions. Mills were operating at from 70 to 100%.

Hutchinson: New flour business was on a restricted scale last week, with bookings generally for one to three cars. Although some family sales were made, bakers were the main buyers. Shipping directions were more than ample.

Salina: Demand for flour is light, with small scattered bookings. Shipping directions are good, but boxcars are scarce.

Texas: Generally speaking, the volume of flour sales last week was governed by the willingness of mills to accept business that was offered to them. There was some buying by government agencies and a fair amount of bakery business, and those mills willing to accept that much sold 100% of capacity. Other mills booked only their family flour customers, so that their sales amounted to no more than from 20 to 25% of capacity. Prices were unchanged. Quotations March 10: family flour $3.90@4.15, high patent $3.65@3.90, standard bakers, ceiling $3.52, enriched $3.64, first clears enriched $2.90@3, delivered TCF.

THE NORTHWEST

Minneapolis: Inquiry is fairly good, and mills apparently could sell a lot more flour than they are. They have to be careful, however, not to accept contracts for more than they can produce before the subsidy expires on June 30. Some buyers would like to take on more than their normal requirements, but the mills are not taking any chances of being left holding the bag and insist that orders placed must be ordered out in regular amounts at specified periods so contracts can be fulfilled on time.

Only about 95 operating days remain between now and June 30, and orders already on books leave very little leeway between their total and the potential production. And any curtailment in production between now and June 30, due to scarcity of boxcars, makes further bookings just that much more hazardous.

A good many northwestern mills this past week had to cut their running time because they could not get cars to load. And the situation shows little or no improvement. The flow of cars from the East so far has not penetrated to the mills, and few are getting more than one tenth of their daily needs.

The most encouraging feature is that mills have no difficulty in getting full ceilings for anything they care to sell. Prices paid today are said to be at least 15c sack higher, all points considered, than a month ago. And clears are doing better. There is no accumulation of high protein clears on mill floors, and they move out as fast as cars are available.

Northwestern mills sold approximately 70% of their capacity last week, against 96% a week earlier and 34% a year ago.

Quotations March 12: established brands family flour, enriched $4.30@4.46, high gluten bakery flours $3.54, bakery short patent $3.44; first patent $3.44, standard patent $3.34; fancy clear $3.24@3.34, first clear $3@3.10, second clear $2.70@2.90, whole wheat $3.30@3.54.

Interior mills, including Duluth: Some inquiry is reported, along with a few scattered sales, but interest centers chiefly on shipments. Virtually all mills are having difficulty getting boxcars for loading. Some, which depend upon terminals for their wheat supplies, have also had days of idleness. These interruptions have only emphasized the scarcity of millfeed and sharpened the shipping demand for it.

THE CENTRAL WEST

Chicago: The demand for flour slowed up a little last week and business, although still fair, was confined chiefly to smaller sized lots. Only a few orders ranged up to 5,000 and 6,000 sacks. Shipping directions continued good. Demand for family flour also slowed up some, but a fair amount of business was reported. Deliveries were good. Quotations March 10: spring top short patent $3.47@3.57, standard patent $3.37@3.47, first clear $3.20@3.40, second clear $2, family flour $4.51; hard winter short patent $3.46@3.57, 95% patent $3.36@3.47, first clear $2.70@2.83, soft winter short patent $3.45@4.31, standaard patent $3.26@4.06, first clear $2.75@3.

St. Louis: Local mills report new flour business very light last week. Bookings were scattered, with only an occasional fair-sized order from the bakery and family trade. Some export flour was booked. The whole situation is contingent upon the securing of boxcars to get wheat to the mill and for loading out of flour orders that have been waiting shipment for some time. High grade protein clears are in good demand and offerings are fair. Prices are firm to slightly higher. Jobbers report practically nothing being placed on their books. Bakers are buying from hand-to-mouth, awaiting further developments. Sugar is scarcer than ever and shortening has tightened up to where the trade is unable to secure its requirements.

Central states mills report very little activity, due to the scarcity of boxcars. However, a car here and there is placed on the books. The trade generally awaiting further developments before making new bookings. Prices are at the ceiling.

Quotations March 10: soft wheat patent $3.98, cake flour $4.58, straight $3.74, family short patent $4.29, straight and 95% $4.29, first clear $3.32@3.75; hard wheat bakers patent $3.44, family short patent $3.57@3.83, straight and 95% $3.44@3.49, first clear $2.85@3.06; spring wheat patent, straight and 95% $3.44.

Toledo: The car situation has not improved, is as bad as it has been at any time, and is expected to get worse. Cars coming in loaded with wheat or other products are utilized but they do not meet the need, as wheat movement is light. Mills are utilizing trucks as much as possible. It is the opinion of some observers the situation may threaten the domestic supply of flour and bread. Millers are not making much effort to sell flour and to make contracts which they may not be able to live up to.

Cleveland: The family flour business is exceedingly brisk. There has been no letup in the demand for family flour since last November. It is very difficult for most jobbers to supply the demand, owing to the delay in shipments. Withdrawals on contracts by bakers are very good, far in excess of the ability of either mills or jobbers to supply the demand. Most bakers are endeavoring to build up their inventory, but are having very little success. Bakers are buying sparingly at this time, just filling in where it is absolutely necessary. Jobbers are working on contracts that were made some time ago. Now that the warmer weather has disposed of the ice and snow, it is possible for the flour jobbers to make normal deliveries each day. It is surprising that during February, when we experienced the worst winter this territory has ever had, retail bakers were able to dispose of all the baked goods they could manufacture.

Quotations March 10: spring first patent $3.80@3.90, standard patent $3.70@3.80, first clear $3.30@3.50; hard winter short patent $3.60@3.70, 95% patent $3.50@3.60, first clear $3.10@3.30; soft winter short patent $4.40@4.65, straight $3.60@3.80, first clear $3.10@3.40.

EASTERN STATES

Buffalo: Sales of flour continue on a modest basis as mills wait for the subsidy matter to be clarified. Due to the acute shortage of railroad cars, mills are running at low capacity. Clears were up 5c. While the situation is relatively quiet, there are signs that as soon as transportation facilities return to approximately normal, and the subsidy is cleared up, there will be plenty of contracts in sight. The trade in many instances is running low on supplies.

Quotations March 10, cottons: spring first patent $3.80, standard patent $3.70, first clear $3.35; hard winter short patent $3.80, 95% patent $3.70, first clear $3.30; soft winter short patent $3.75, first clear $3.10.

New York: The importance of getting flour through for delivery overshadows the desire to get new business. Brokers exert their main efforts to routing shipments and checking deliveries from railroad yards to terminals to bakers and jobbers. Buyers show some interest and moderate purchases are being made, but prices are firmly held at ceilings on nearly all grades and some not being offered at all. Eastern soft winter straights are offered more freely, but clears from both the North and Southwest are higher. No large round lot business is indicated, but sales of a few thousand barrels are occasionally reported to medium-sized bakers. Quotations March 10: spring high glutens $3.95, standard patents $3.65@3.75, clears $3.40@3.55; southwestern short patents $3.75@3.85, standard patents $3.65@3.75, clears $3.10@3.20; soft winter straights, Pennsylvania $3.60@3.70, Pacific coast $3.71@3.75.

Boston: Shipping problems induced by car shortages occupy attention of both buyers and sellers and little interest is displayed in new business. Even though favorable action is expected from Congress on extension of the subsidy program, mills are not inclined to accept business for shipment later than June 15, so that the amount of new business which they can accept is unusually limited and some mills are withdrawn from the market. The baking trade in general is well covered and does not appear concerned over the possibility of a future shortage. Their attention is taken up primarily with getting out flour booked previously. A number of them have been forced to appeal to Washington for shortening. Flour sales the past week were small and covered only current needs. Mill quotations held at or close to ceilings. Quotations March 10: spring high gluten $3.92@3.97, short patent $3.82@3.87, standard patent $3.72@3.77, first clear $3.42@3.48; southwestern short patent $3.82@3.87, standard patent $3.72@3.77; Texas short patent $3.82@3.87, standard patent $3.72@3.77; soft winter short patent $3.75@3.90, straights $3.65@3.75, clears $3.55@3.65.

Philadelphia: The strength in flour continued unabated last week, with prices being held in most cases at or close to ceilings. Apart from occasional sales to cover immediate needs of some bakers, mills generally are unwilling to offer except in the most sparing manner. They are booked ahead for a considerable period and with present transportation difficulties and uncertainty over the subsidy, are unwilling to increase their already substantial backlogs. Trade opinion mostly inclines to the view that the domestic subsidy will be continued for another year and prospective buyers are encouraged to await developments, particularly since prices are largely at ceilings. Quotations March 10: spring wheat short patent $3.78@3.83, standard patent $3.68@3.73, first spring clear $3.45@3.55; hard winter short patent $3.75@3.83, 95% $3.68@3.73; soft winter straights, nearby $3.35@3.45.

Pittsburgh: Mills were turning down inquiry for flour the past week, due to lack of cars and scarcity of wheat. Prices are firm with full ceilings quite usual. Little flour business was solicited or closed in the Tri-State area for bakers, jobbers or family flour. High flood waters submerged many business sections in large and small towns, bringing loss of business and property damage to some bakers and jobbers. Shipping directions were brisk, with flour salesmen in a quandary regarding deliveries. It was a very quiet, but most disturbing, week for flour handlers in the entire Tri-State area.

Quotations March 10: hard winter bakers short patent $3.70@3.80, straight $3.60@3.70, high gluten $3.90, first clear $3.15@3.25; spring bakers short patent $3.70@3.80, standard $3.60@3.70, high gluten $3.90, first clear $3.45@3.50; soft winter bakers cake flour $4.55@4.60, intermediate $3.85@3.92, straight $3.65@3.69; Pacific coast $3.63@3.73, family flour, advertised brands $4.35@4.71, other brands $4@4.71.

THE SOUTH

New Orleans: Little flour business occurred during the past week. Most sales were in southwestern hard wheat. A small amount of baking developed in northern spring wheat types. Sales of midwestern and Pacific coast flours were light. No price changes occurred. Shipping directions continue good. Bread, cake, cracker and macaroni production is good. Quotations March 10: hard spring family patent $3.65, first patent $3.44, standard patent $3.34, fancy clear $3.25@3.30, first clear $3.25, second clear $3.15; hard winter family patent $3.75, bakers short patent $3.45@3.60, first clear $2.85@3.10, soft wheat short patent $4.25@4.45, straight $3.90@4.15, first clear $3.55@3.70.

Nashville: Nearby millers and local brokers indicate that new flour business consists of only an occasional sale of a car or so of patent grade, both soft and hard, for immediate or reasonably prompt shipment. The car shortage is felt keenly here and in nearby sections and millers report that their production is held up considerably, due to the fact that they are unable to secure sufficient cars to move their output. Local blenders' business varies from slow to fairly good, depending on the section. Rains and high water in some sections are holding up spring plowing and farm consumers are buying on a hand-to-mouth basis. In the war production sections business shows considerable improvement. Nashville bakers reported a few purchases of special types or grades on which their supplies had become exhausted. Their sales of bread, rolls, cakes and pies continue exceptionally good. Flour prices are unchanged from a week ago.

A SUMMARY OF FLOUR QUOTATIONS IN LEADING MARKETS

Week-end flour quotations, per sack (cwt), packed in 100 lbs. (Canadian quotations per bbl of 196 lbs.) All quotations on basis of carload lots, prompt delivery.

	Chicago	Minneapolis	Kansas City	St. Louis	Buffalo	New York	Baltimore	Philadelphia	Boston	Cleveland	†Nashville
Spring first patent	$3.47@ 3.57	$..@ 3.44	$..@..	$..@ 3.44	$..@ 3.80	††$..@ 3.95	$..@..	$3.78@ 3.83	$3.82@ 3.87	$3.80@ 3.90	$..@..
Spring standard patent	3.37@ 3.47	..@ 3.34	..@..	..@ 3.44	..@ 3.70	3.65@ 3.75	..@..	3.68@ 3.73	3.72@ 3.77	3.70@ 3.80	..@..
Spring first clear	3.20@ 3.40	3.00@ 3.10	..@..	..@..	..@ 3.35	3.40@ 3.55	..@..	3.45@ 3.55	3.42@ 3.48	3.30@ 3.50	..@..
Hard winter short patent	3.46@ 3.57	..@..	..@ 3.41	..@ 3.44	..@ 3.80	3.75@ 3.85	..@..	3.78@ 3.83	3.82@ 3.87	3.60@ 3.70	..@..
Hard winter 95% patent	3.36@ 3.47	..@..	..@ 3.31	3.44@ 3.49	..@ 3.70	3.65@ 3.75	..@..	3.68@ 3.73	3.72@ 3.77	3.50@ 3.60	..@..
Hard winter first clear	2.70@ 2.83	..@..	2.75@ 2.85	2.85@ 3.06	..@ 3.30	3.10@ 3.20	..@..	..@..	..@..	3.10@ 3.30	..@..
Soft winter short patent	3.45@ 4.31	..@..	..@..	..@ 3.98	..@ 3.75	..@..	..@..	..@..	3.75@ 3.90	4.40@ 4.65	..@ 4.78
Soft winter straight	3.26@ 4.06	..@..	3.30@ 3.35	..@ 3.74	..@..	3.60@ 3.70	*..@..	*3.35@ 3.45	3.65@ 3.75	3.60@ 3.80	4.60@ 4.85
Soft winter straight (Pac. cst.)	..@..	..@..	..@..	..@..	..@..	3.71@ 3.75	..@..	..@..	..@..	..@..	..@..
Soft winter first clear	2.75@ 3.00	..@..	..@..	3.32@ 3.75	..@ 3.10	..@..	..@..	..@..	3.55@ 3.65	3.10@ 3.40	4.15@ 4.45
Rye flour, white	3.18@ 3.37	3.23@ 3.33	..@..	..@ 3.79	..@ 3.55	3.50@ 3.60	..@..	3.55@ 3.62	..@..	3.25@ 3.35	..@..
Rye flour, dark	2.43@ 3.05	2.98@ 3.06	..@..	..@ 3.29	..@ 3.05	..@..	..@..	..@..	..@..	2.60@ 2.70	..@..
Semolina, No. 1	..@ 3.75	..@..	..@..	..@ 3.99	..@ 3.98	..@ 4.03	..@..	..@ 4.03	..@..	..@..	..@..

	Seattle	S. Francisco	Standard patent—	Seattle	San Francisco
Family patent, 50's	$..@ 4.12	$..@..	Dakota	$..@..	$..@..
Soft winter straight	..@..	..@..	Montana, 100's	..@ 3.59	..@..
Pastry, 100's	..@ 2.98	..@..			

	Toronto	**Winnipeg
Spring top patent‡	$..@5.05	$..@ 5.30
Spring second patent‡	..@4.40	..@ 4.80
Spring first clear‡	..@3.30	..@..

	Toronto	**Winnipeg
Spring exports‡	$9.45	....
Ontario 90% patents‡	5.50	....

*Includes nearby straights. †Nashville prices basis f.o.b. Ohio River points for soft winter wheat flour. **In cottons, Fort William basis. ‡Second-hand cottons. §98-lb cottons. §§80-lb cottons. ††High glutens.

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FOR SALE—MILLING MACHINERY

Machinery of 100-barrel flour mill, complete, located at Murray, Utah, equipment crated for shipment in carload to your destination. Rolls, wheat washers, flour dressers, reels, purifiers, wheat scourer, line shafts, jacks, idlers, pulleys. Mill recently in operation, now being dismantled to convert property into feed mill. Wire or phone LD-4 for price and complete inventory list. Desire make one sale entire equipment, complete, but would sell individual machinery units if buyer prefers.

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PORTLAND, ORE., OFFICE - - - 704 N. E. 68th St.
MINNEAPOLIS OFFICE - - 216 Hodgson Building

Quotations March 10: soft wheat bakers and pastry flour $3.70, high patent $4.78, extra protein content $4.85, soft wheat short patent family $5@5.10, standard patent $4.85@5, straight $4.60@4.85, clear $4.15@4.45.

PACIFIC COAST

Seattle: The flour market continues unchanged. Mills are all booked solid, and, with government requirements on the increase, this condition will continue for some time. The car shortage still is interfering with the movement of wheat from Montana to Pacific coast mills and will cause some of the terminal mills to curtail operations. Quotations March 10, basis carlots, f.o.b. Seattle or Tacoma: family patent, enriched, 50's $4.12; bakery pastry, 100's $2.98, bluestem, 100's $3.33; Montana hard wheat, 100's $3.59.

Portland: The army and navy were after more flour last week, but mills are unable to get wheat to fill existing bookings. The extent of the military requirements is not revealed, but they have informed the mills they will be in the market for more flour soon. More mills closed down the past week because they could not obtain Montana wheat for their government flour bookings. Some mills have switched to making soft wheat and graham flours until they can get Montana wheat. There is no improvement in wheat deliveries, with only an occasional car coming through. Local bakers are trying to buy flour, but mills have little or nothing to offer in the best grades until they can get Montana wheat. Quotations March 10: all Montana $3.60, high gluten $3.60, bluestem bakers $3.37, bluestem topping $3.30, cake $3.80, pastry $3.08, pie $3.08, fancy hard wheat clears $3.30, whole wheat 100% $3.30, graham $3, cracked wheat $3.

OATMEAL MARKETS

Toronto-Montreal: Cereal mills are exceptionally busy. Export orders are keeping them operating to capacity. Domestic sales are normal. Prices are unchanged at the ceiling. Quotations: rolled oats $3.15 bag of 80 lbs, cotton, in mixed cars; oatmeal, in 98-lb jutes $3.85 bag, f.o.b. Toronto or Montreal.

Winnipeg: Rolled oats and oatmeal are in moderate demand as far as the domestic market is concerned. The United Kingdom recently made a substantial purchase, but it is indicated that the bulk of this order is being taken care of by mills in eastern Canada. Stocks are sufficient to take care of buying orders. Quotations: rolled oats, in 80-lb sacks $3.25 in the three prairie provinces; oatmeal, in 98-lb sacks, 20% over rolled oats.

Minneapolis: Bulk rolled oats temporarily not quoted on March 12: 20-oz packages $2.59 case, 48-oz packages $2.82.

Milling Executives

We are expertly qualified to provide for inventory and material controls.

Write for full information.

ARTHUR L. CHANDLER & CO.
Management Counsellors
Merchants Exchange ST. LOUIS, MO.

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QUALITY MILLED FLOURS
Ismert-Hincke Milling Co.
Kansas City, Mo.

THE WALNUT CREEK MILLING CO.
Millers of Fine, Country-Milled Kansas Wheat Flours Since 1877
GREAT BEND, KANSAS

WANT ADS

Advertisements in this department are 5c per word; minimum charge, $1. (Count six words for signature.) Situation Wanted advertisements will be accepted for 2½c per word, 50c minimum. Display Want Ads $4 per inch per insertion. All Want Ads cash with order.

HELP WANTED

WANTED — AN EXPERIENCED BAKERY flour salesman to cover eastern Pennsylvania. Contact Standard Milling Company, 309 W. Jackson Blvd., Chicago 6, Ill.

WANTED — EXPERIENCED BOLTER OR spouter to become second miller, modern 1A plant. Address 7152, Milling Production, 612 Board of Trade Bldg., Kansas City 6, Mo.

THE STANDARD MILLING COMPANY has a real opportunity for a topnotch proven flour salesman. Contact The Standard Milling Company, 309 W. Jackson Blvd., Chicago 6, Ill.

HELP WANTED—CEREAL CHEMIST FOR active 2,000-sack flour mill in large country town. Aggressive company with large opportunity for advancement. Address 7212, The Northwestern Miller, 612 Board of Trade Bldg., Kansas City 6, Mo.

WANTED — A MILLWRIGHT FOR GENeral mill work as maintenance man on both flour and feed mill. Interested in either permanent or temporary worker. Also have opening for second miller. Wilkins-Rogers Milling Co., Washington 7, D. C.

HELP WANTED — ELEVATOR SUPERINtendent 250,000-bu concrete house. Eastern section of U. S. Good salary right party. Also bookkeeper with grain experience. Address 7226, The Northwestern Miller, 612 Board of Trade Building, Kansas City 6, Mo.

KANSAS MILL, AGGRESSIVE, COMPETItive, with substantial capacity, not now represented in New England, wishes good brokerage connection in Boston or other good flour center. Replies confidential. Write 7214, The Northwestern Miller, 23 Beaver Street, New York 4, N. Y.

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N. & M. CHILLS, 10x30; NO. 4 ALLIS Reels, No. 28 Great Western sifters and parts for them. 9x24 Allis roller mills, No. 7 Niagara Upright bran duster; No. 4 Allis Upright bran duster. Receiving separators. Richardson Co., 1901 2nd St. N., Minneapolis, Minn.

MACHINERY WANTED

WANTED—BRIGHTWOOD BOX MACHINE —Pneumatic scale packaging machine; two flour blenders. Address 4970, The Northwestern Miller, Minneapolis 2, Minn.

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FLOURS Complete Range
Spring Wheat • Kansas Wheat • Soft Wheat
Full Line of **CRITIC FEEDS**
SCHULTZ, BAUJAN & CO., Beardstown, Ill.

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Address Box 1200, 1474 Broadway, N.Y.C.

Committee Chosen

(Continued from page 9.)

whether existing or under consideration for export of civilian supplies.

(B) The committee shall designate a secretary to maintain the records of its proceedings.

Byrnes' Letter

In a letter to Leo Crowley, Byrnes said that "it is apparent that the shipment of food for relief purposes from the U. S. must be correlated with the shipment of industrial equipment and raw materials to obtain the best use of shipping and at the same time to avoid commitments which will require the use of shipping needed for the war effort."

Disclaiming any intention that this committee should assume responsibility for allocation of raw materials or foods now vested in WPB or WFA, Byrnes, however, has ordered that recommendations for export from these agencies will have to be submitted to the committee for evaluation and consideration in relation to effect on transportation and civilian economy and other factors as conditions warrant.

Byrnes emphasizes the continued responsibility of the armed forces for determining their needs in wake of battle but states that these needs also must be known to the committee for consideration in connection with other proposed shipments. Byrnes said: "Any requirements for civilian purposes extending beyond wake of battle which are vested in the war department are to be placed before the committee."

Continuing he added, however, that "of course military requirements must still have first priority followed by claims of the military agencies for relief supplies in the wake of battle. It must be recognized that aid in occupied enemy countries may be provided under existing law only to the extent required in wake of battle."

Concluding his letter, Byrnes stated, "it is to be understood that no agency of the government may enter into formal or informal commitments for the export of supplies other than essential military purposes, such as direct military and lend-lease supplies in the wake of battle, to foreign countries without first receiving the approval of the committee."

MILLFEED MARKETS

Minneapolis: Were it not for the fact that trucks are hauling away most of the feed produced, a great many spring wheat mills would be forced to reduce their running time for lack of working space. They are not getting enough cars to take care of their flour output so that only an occasional car is available for feed. All are behind on deliveries against old contracts that depend upon rail shipment. Eastern inquiry is keener than ever, but mills have nothing to offer. And it does not look as if there will be any enlargement of supplies until the boxcar situation becomes normal again. Ceiling: $37.75.

Oklahoma City: Brisk sales continue, with no change in prices. Supplies are inadequate. Quotations, burlaps, carloads for southern deliveries: bran, mill run and shorts $1.95 cwt; for northern deliveries: bran, mill run and shorts $1.90.

Omaha: Every point in the country seems to urgently need wheat millfeeds and the demand far exceeds the output. The car situation has improved somewhat. Bookings of corn have increased and the market has dropped away from the ceiling.

Wichita: The millfeed situation continues tight and it is growing tighter, as mill operations have been somewhat slowed down for lack of cars. Prices, quoted Kansas City basis, for both bran and shorts, are: $36.50.

Hutchinson: Millfeed demand continues strong as far as nearby deliveries are concerned and offerings find ready takers at the ceiling. Less disposition to anticipate future needs is shown. Quotations, Kansas City basis: bran, mill run, gray shorts $36.50@37.50 ton.

Salina: Demand is exceptionally good with prices steady and supplies considerably short of trade requirements. Bran and shorts continue to sell at ceiling levels.

Fort Worth: Supplies continue inadequate for the potential demand. Occasional cars of bran are offered and remain tight at the ceiling. No carlot shorts are to be had. Quotations, ceiling, carlots: wheat bran and grey shorts $42.20, sacked, delivered TCP, in mixed cars $1 ton higher.

Toledo: Demand continues in excess of supply and all millfeeds are still at ceiling levels of $42.37 ton, f.o.b. Toledo.

Cleveland: The demand for feed continues. There is no surplus and all grades are being sold at ceiling prices. Mills are inclined to sell their feed to truckers, owing to the scarcity of cars. Quotations: spring bran, hard winter bran, standard middlings, flour middlings, and red dog, all $42.99 ton.

Buffalo: Output still is badly curtailed, due to the shortage of empty boxcars, while demand is very heavy and far in excess of available supplies. Quotations, all varieties, $41.55, straight carlots, f.o.b. Buffalo.

Boston: No easing in the tight situation is noticeable, while demand, particularly for nearby needs, continues heavy. Deliveries of all feeds are slow and supplies on hand in this section are small. Mills are handicapped by inability to obtain grain due to car shortages. Jobbers are hard pressed to find either millfeeds or coarse grains on which to trade. Spring bran, midds., mixed feed, red dog, all $45.67@46.17 ton.

Philadelphia: Demand is active, the trend is firm and supplies are small. Standard bran, pure spring, hard winter, soft winter, std. midds., flour and red dog, all $44.84@45.34 ton.

Pittsburgh: Millfeeds of every type are more scarce than ever. Standard middlings, bran, red dog demand is very large and ceilings of $44.85 are paid when located. Jobbers here agree lend-lease demand for cars is more vital to war work than hauling feeds, but they state that the situation is critical for both wholesalers and retailers who need millfeeds.

Nashville: Demand for millfeed varies. In sections where slaughtering was done around Christmas, the demand is only fair. In other sections, dealers indicate it is heavy and offerings are light. Prices are at the ceilings, both bran and shorts being quoted at $43.30@44.30 ton.

Seattle: The supply is limited; $36.50 ton.

Portland: Mill run, bran, shorts, midds. $36.50 ton.

Ogden: Millfeed trade continued steady during the past week with plants operating to capacity. Mills are booked into May with some cars booked into June. Quotations: red bran and millrun, blended, white and midds. $36.30, carload lots, f.o.b. Ogden. Denver prices: red bran and mill run, blended, white and midds. $38 ton, ceiling. California prices: red bran and mill run, blended, white and midds. $42.08, carlots, f.o.b. San Francisco, with Los Angeles prices up $1 ceiling.

Toronto-Montreal: Although production is at record levels it is insufficient to cover demand of domestic buyers. Other forms of feed are scarce and dearer than millfeed. This accounts for the unusually heavy inquiry. Ceiling prices prevail. Quotations: domestic ceiling, bran $29, shorts $30, midds. $33 ton, net cash terms, bags included, mixed or straight cars, Montreal freight rates.

Winnipeg: Millfeed continues in good demand and sales to eastern Canada are very substantial, but still short of requirements. Sales in the three prairie provinces are unimportant, and some small amounts from Alberta plants are moving to British Columbia. Quotations: Manitoba and Saskatchewan bran, $28, shorts $29; Alberta bran $25.50, shorts $26.50; small lots ex-country elevators and warehouses $3 extra.

Vancouver: The trend is steady, with domestic demand continuing at a record pace and mills unable to keep up with orders. Strict rationing on all orders is being maintained by dealers with no indication of any immediate improvement in the supply or demand. Prices are unchanged, cash car quotations, bran $29.80, shorts $30.80, midds. $33.80.

CANADIAN MARKETS

Toronto-Montreal: Spring wheat flour sales are up to normal in the domestic market. This business is going on steadily, with millers keeping their buyers well supplied. Jamaica was the only market showing any activity in the way of new export bookings during the week. Canadian mills have so far made no offers to the British buying agency for flour for shipment in May. Although they are now well up to date with production on previous orders shipments to seaboard have been slowed up by shortage of railway cars. There is also said to be considerable congestion at the seaboard. Scarcity of labor and other factors are causing this condition. In the meantime mills are booked up until the end of April. Prices are unchanged at ceiling levels. Quotations March 10: top patents $5.05 bbl, seconds $4.40, bakers $4.30, in 98's cotton, mixed cars, track Toronto-Montreal freights, add 10c extra where cartage is performed. For export, government regulation flour is quoted at $9.45 per 280 lbs. f.a.s. winter ports, March-April seaboard.

The winter wheat flour market is inactive. Scarcity of this grain is reducing the production of flour. Mills are finding it difficult to get enough wheat to fill all the flour export orders received. Domestic buyers are fully covered. Prices do not change from the ceiling. Quotations March 10: $5.50 bbl, in secondhand cottons, Montreal freights; for export $6.25 bbl, in cotton bags, Canadian seaboard, plus equalization fee of 75c bbl.

Delivery of winter wheat continues poor. Country roads are little improved and farmers will not market their grain under present difficult conditions. Fair quantities of this wheat remain on farms which will probably be delivered when the situation improves. The ceiling is the price. Quotations March 10: $1.26 bu, Montreal freights, which is equivalent to $1.12@1.14 bu, f.o.b. shipping points, according to freights.

Winnipeg: Export business in Canadian flour last week was again restricted to small quantities for the West Indies, with the total for the week less than 250,000 bus in terms of wheat. Domestic trade continued good, and mills are quite active and operating 24 hours a day. It is indicated that all mills in western Canada are booked up into May. Supplies are moving freely, but there is a suggestion that the movement may slow up a little if the railway car situation does not improve shortly. Quotations March 10: top patent springs for delivery between Fort William and the British Columbia boundary, $5.30 cottons; second patents $4.80; second patents to bakers $4.60.

Vancouver: Still without any steamship space allocated for export business, flour dealers in this territory are confining their energies to the domestic market. While there were some indications a short time ago that some flour might be included in shipments of sacked wheat to New Zealand and Russia under lend-lease arrangements, actually the movement of grain so far has been very limited due to shortage of steamship space and no flour has been included.

Domestic hard wheat flour demand is confined chiefly to bakery orders with store sales far below normal. Stocks in dealers' hands here are ample for current demands, but not burdensome. Prices hold at ceiling levels, cash car quotations in cotton 98's as of March 10 being $5.40 for top patents, $5 for bakers patents and $4.90 for vitamin B.

Demand for Ontario soft wheat flour holds fairly steady but supplies are getting tighter as Ontario mills find an active outlet for their stocks in shipments from eastern ports. Price here to the trade is firm at $7.50.

RYE PRODUCTS

Minneapolis: Wide fluctuations in grain last week brought about equally wide fluctuations in rye flour, but aside from stirring up a little interest, did not bring much new business. The trade evidently is determined to continue buying only from hand-to-mouth and let the future take care of itself. But millers are not free sellers anyway. They are centering their efforts entirely on getting boxcars. One important mill was forced to close down for four days last week, because it could not get cars in which to load out the flour and feed it made. Others are experiencing the same difficulty.

There was a spread of 12c sack in quotations last week, with the market now 3c under last week. Pure white rye flour $3.23@3.33 cwt, in cottons, f.o.b. Minneapolis, pure medium $3.13@3.23, pure dark $2.98@3.06.

Cleveland: Demand for rye flour for immediate delivery seems to exceed the supply. The delay in shipping by the rye mills makes it almost impossible to carry a satisfactory inventory. Very little interest is shown in new business at this time. Buyers are taking withdrawals on their old contracts. Quotations: rye flour, white $3.25@3.35, dark $2.60@2.70.

Chicago: There were scattered sales of rye flour last week chiefly in smaller sized lots. Directions were good. White patent rye $3.18@3.37, medium $3.15@3.27, dark $2.43@3.05.

Philadelphia: During the greater part of the week, the market for rye flour gathered strength daily under the influence of smaller offerings and a more active demand. Near the close, however, a slight portion of the advance was lost, with buyers becoming very cautious; white patent $3.55@3.62.

St. Louis: Prices advanced $@10c last week. Sales and shipping directions were better. Pure white flour $3.79, medium $3.69, dark $3.29, rye meal $3.54.

New York: Rye flour sales are light. Quotations: pure white patents $3.50@3.60.

Portland: Pure dark rye $3.45, medium dark $3.50, Wisconsin pure straight $4, Wisconsin white patent $4.15.

Pittsburgh: Rye flour sales are slow even though prices are a trifle lower. Shipping directions are good, but deliveries are very slow. Rye flour, fancy white $3.55@3.60, medium $3.45@3.50.

Bonded Grain in the United States

Bonded grain in the United States March 3, 1945, in bushels (000's omitted):

	Wheat	Corn	Oats	Rye	Barley
Baltimore	562	..	..	..	..
Boston	914	..	..	..	..
Buffalo	6,296	..	374	46	..
Afloat	4,788	..	..	..	440
Chicago	..	..	..	..	..
Afloat	902	..	1,004	..	..
Duluth	29	..	225	..	242
Fort Worth	439	..	..	..	..
Lakes	..	..	..	..	..
N. Orleans	..	1,026	..	..	..
New York	452	..	..	..	..
Afloat	221	..	..	..	..
Philadelphia	663	..	..	..	..
Totals	15,266	1,026	1,603	46	682
Feb. 24, 1945	15,530	1,026	2,091	46	682
March 4, 1944	8,275	..	..	3,287	118

GRAIN FUTURES—CLOSING PRICES

Closing prices of grain futures at leading markets, in cents per bushel:

WHEAT

	Minneapolis		Chicago		Kansas City		Seattle		Duluth	
	May	July	May	July	May	July	May	July	May	July
March 6	161⅜	155½	170⅝	159½	162¾	151⅞	156	....	166	....
March 7	162¼	155¼	170½	158⅝	162⅝	151¼	155½	150	167	....
March 8	160¾	153½	167⅞	156⅜	161	149⅝	155	150	167	....
March 9	162¼	154⅜	169¼	157¼	161⅛	149⅜	155	150	167	....
March 10	161⅞	153⅝	169½	157¼	161⅛	149⅛	155	150	167	....
March 12	162⅞	154⅜	170⅞	159¼	162⅞	151¼	....	....	167	....

	CORN						OATS			
	Minneapolis		Chicago		Kansas City		Chicago		Minneapolis	
	May	July	May	July	May	July	May	July	May	July
March 6	....	....	114⅞	113	111	....	67⅝	61⅝	64¼	58⅞
March 7	....	....	115½	113⅜	111⅝	109¾	67¾	61¾	64¼	59
March 8	....	....	114⅜	112¼	110¾	109½	66	59⅞	63⅛	57¼
March 9	....	....	114¼	112	110⅜	108¼	66¼	60⅛	63⅜	57⅝
March 10	....	....	114⅛	112	110⅜	108⅜	66¼	60⅛	63	57¼
March 12	....	....	114⅜	112	110½	108½	66⅜	60½	63⅜	57⅝

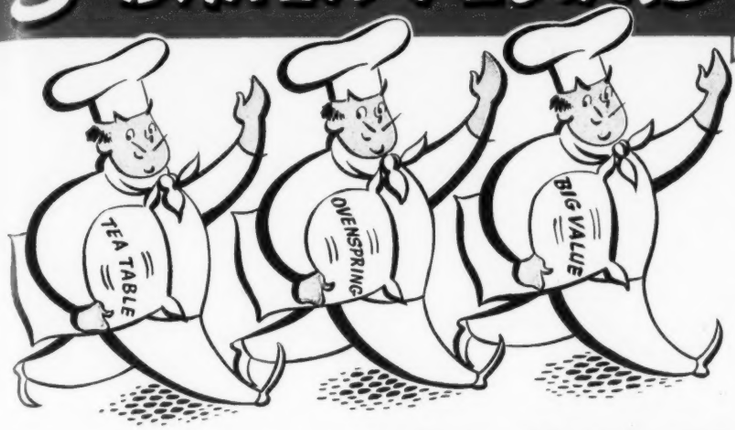
	RYE				FLAXSEED				BARLEY	
	Chicago		Minneapolis		Minneapolis		Duluth		Minneapolis	
	May	July	May	July	May	July	May	July	May	July
March 6	116⅜	114⅝	116	113¼	310	....	310	....	107	....
March 7	116⅞	114½	115⅛	113	310	....	310	....	107	....
March 8	112⅜	111⅛	113⅜	110¾	310	....	310	....	107	....
March 9	113⅛	111⅜	112⅜	109½	310	....	310	....	107	....
March 10	113⅝	111⅜	112⅝	109¾	310	....	310	....	107	....
March 12	114½	112½	113¾	110¾	310	....	310	....	107	....

UNITED STATES VISIBLE GRAIN SUPPLY

Visible supply of grain in the United States, as compiled by the secretary of the Chicago Board of Trade, in bushels (000's omitted) of date March 3, and corresponding date of a year ago:

	Wheat		Corn		Oats		Rye		Barley	
	1945	1944	1945	1944	1945	1944	1945	1944	1945	1944
Baltimore	1,793	4,666	686	89	9	38	55	85	2	3
Buffalo	6,283	5,410	170	1,039	4,243	2,557	552	3,254	734	1,066
Afloat	1,519	323	..	..	..	..	..	..	..	..
Chicago	3,387	5,172	6,373	3,953	945	856	8,099	9,640	1,451	741
Afloat	107	..	747	..	..	..	70	..	..	..
Duluth	11,104	20,858	1,265	11	5,007	903	429	664	7,672	332
Fort Worth	9,879	4,869	201	532	187	101	41	40	96	24
Galveston	1,378	2,964	2	..	..	..	..	..	..	..
Hutchinson	8,111	5,387	..	..	..	..	..	..	..	..
Indianapolis	739	1,403	1,128	1,163	68	153	32	83	..	82
Kansas City	22,474	11,599	2,189	3,733	37	245	291	820	972	3,913
Milwaukee	500	1,587	112	131	3	2	..	62	3,494	4,163
Minneapolis	12,997	21,343	1,718	570	908	1,882	1,119	4,736	6,643	23
New Orleans	675	1,316	76	526	36	69	..	..	191	..
New York	172	714	32	35	..	25	..	..	..	..
Omaha	7,487	4,656	2,199	3,572	145	549	27	351	946	98
Peoria	4	364	391	239	..	..	..	..	58	220
Philadelphia	461	1,875	455	534	25	40	52	83	..	4
St. Louis	2,331	2,986	1,266	1,132	116	250	36	47	133	260
Sioux City	409	325	284	749	39	74	4	43	9	10
St. Joseph	2,515	2,826	1,070	1,998	95	359	15	9	43	38
Wichita	4,702	1,379	14	17	3	19	..	..	163	7
Canals	..	..	..	..	..	..	..	..	..	..
Lakes	..	..	..	..	..	..	..	..	..	..
Totals	99,027	102,022	20,678	20,023	11,866	8,122	10,822	19,917	22,607	10,984

3 BAKER FLOURS



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KATY *and* WABASH ELEVATORS

Total Capacity 7,200,000 Bushels

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Winnipeg Grain Exchange
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New York Cotton Exchange
New York Cocoa Exchange

OFFICES:
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Chicago, Ill.
Kansas City, Mo.
Enid, Okla.
Fort Worth, Texas
Amarillo, Texas

POLAR BEAR FLOUR IS KING

A Kindly Tip—

POLAR BEAR FLOUR

Is Habit Forming

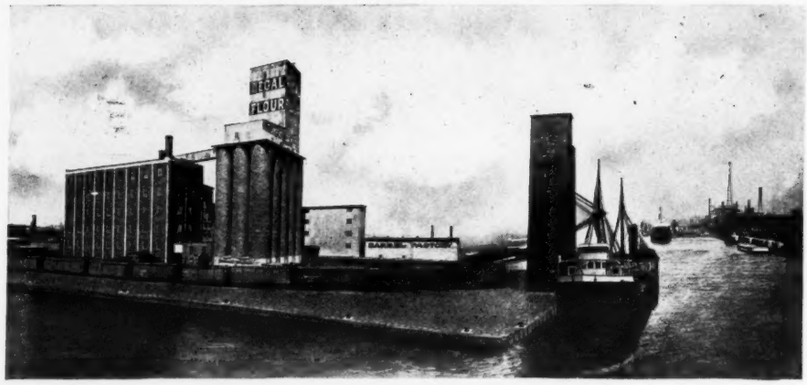
Once you use it, you probably will keep right on.

FOUNDED BY
ANDREW J. HUNT—1899

The NEW ERA MILLING CO. ARKANSAS CITY, KANSAS

The St. Lawrence Flour Mills Co., Ltd.

MONTREAL • CANADA



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Hard Wheat Flours

"Regal"
"Fleur de Lis"
"National"
"Daily Bread"
"Citadel"

Quality uniformly maintained for over 25 years

IT'S IN THE RECORD
with

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Laboratory Control
Uniformity
Performance

CANADIAN SPRING WHEAT FLOUR

ROLLED OATS

OATMEAL

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Mills and Sales Offices: VANCOUVER · CALGARY · MOOSE JAW · SASKATOON
WINNIPEG · TORONTO · HUMBERSTONE · MONTREAL · MONCTON
EASTERN EXPORT OFFICE: MONTREAL · ORIENTAL EXPORT OFFICE: VANCOUVER

SPILLERS LIMITED

◆ ◆

Millers of the
HIGHEST QUALITY FLOUR
and Manufacturers of
PROVENDER AND BALANCED RATIONS
FOR ALL CLASSES OF FARM STOCK

◆ ◆

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Cables:
"Milligroup"
London

Since 1857

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Successors to Wolverton Flour Mills Co., Ltd.
Canadian Spring and Winter Wheat Flour
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Members: Toronto Board of Trade
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Standard the world over for cutting small grains, wheat, hulled oats, etc.
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CABLE: LAKURON TORONTO, CANADA

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All Western Canada Hard Wheat Flours

PURITY • THREE STARS
CANADA CREAM • STERLING

GREAT WEST
BATTLE
MAITLAND
HURON

UNIFORM QUALITY GUARANTEED

FLOUR MILLING CAPACITY 9500 BBLS DAILY • ROLLED OATS AND OATMEAL 400 BBLS DAILY

THE PROVINCE OF NOVA SCOTIA

The historic Province of Nova Scotia, once known as Acadia, is 374 miles long, from 60 to 100 miles wide and has an area of 21,428 square miles. Practically surrounded by water, no portion being more than fifty miles from the sea, Nova Scotia has 4,625 miles of coastline, guarded by 356 lighthouses and fog alarms. The surface of the country is undulating. The Province is renowned for its picturesque shores, capacious harbours, deep valleys and multitude of beautiful lakes. It has the proud distinction of being the only Province of Canada and the first colony of Great Britain to possess a flag of its own. The flag and Coat of Arms were granted to Nova Scotia in 1625 by King Charles I of England. The armorial bearing is the oldest of all Arms borne by the British Dominions.

JUTE BAGS COTTON

OLDEST ESTABLISHED MANUFACTURERS OF

JUTE **BAGS** COTTON

IN CANADA

Factories—MONTREAL - TORONTO

The CANADIAN BAG CO., Limited

Head Office. MONTREAL, QUEBEC

JUTE BAGS COTTON

QUALITY UNIFORMLY MAINTAINED SINCE 1887

Lake of the Woods Milling Co., Limited

Cable Address
"HASTINGS"
Montreal

ALL
CABLE CODES
USED

Makers of CANADIAN HARD SPRING WHEAT *Flour*

Owning and Operating
Wheat-Receiving Elevators in Manitoba, Saskatchewan and Alberta

Mills at
Brantford, Keewatin, Medicine Hat

HEAD OFFICE: MONTREAL

WESTERN OFFICE: WINNIPEG

Research Highlights

(Continued from page 4.)

brid alfalfa by natural crossing, which will speed up the breeding of improved varieties of this important forage crop. Considerable progress was made, in co-operation with entomologists and with state research workers, in the breeding of insect resistant crop plants, including wheat, field corn, sweet corn, alfalfa, sugar cane and grain sorghum.

Human Nutrition and Home Economics

IN the Bureau of Human Nutrition and Home Economics, headed by Dr. Hazel K. Stiebeling, a new method was developed for determining certain amino acids directly in foods. Amino acids are the building blocks that make proteins, both in foods and in the muscle and other tissues of the human body. The new method will make possible much more rapid advances in obtaining precise information on the value of our common foods in supplying these vital substances.

As in previous years, the bureau has worked out food plans, based on research findings on nutritional requirements and food values, to help consumers make the best use of wartime supplies. The bureau nutritionists have also helped to define the nutritional needs of civilians and have appraised per capita food consumption in terms of calories, protein, vitamins and minerals, as part of the information needed to guide wartime food policies and programs.

More detailed information on these and many other developments in the scientific work of the Agricultural Research Administration will be found in the 1944 annual report of the bureaus. A copy of any one of these may be obtained on request from the Office of Information, United States Department of Agriculture, Washington 25, D. C.

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COATSWORTH & COOPER
LIMITED
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Grain and Feeds
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"BLOSSOM *of* CANADA" "YORK" "NORDIC"
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CANADIAN HARD SPRING WHEAT
529 Elevators in Manitoba, Saskatchewan and Alberta.
UNITED GRAIN GROWERS, LTD.
Winnipeg, Manitoba

CANADA'S LARGEST FLOUR EXPORTERS

Head Office— Toronto, Ontario

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Maple Leaf Milling Co. Limited.

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TORONTO, ONTARIO MEDICINE HAT, ALBERTA PORT COLBORNE, ONTARIO

CHOICEST CANADIAN *Hard Spring Wheat*

and perfect milling facilities have placed our products in the van.

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"WOODLAND" - - "HOMELAND"

THE DOMINION FLOUR MILLS, LTD.

Cable Address: "DOMFLOUR" MONTREAL, CANADA

SINCE 1801
THE LEADING NAME
IN CANADIAN
FLOUR & CEREAL
MILLING—

OGILVIE

Makers of

CANADA'S BEST FLOUR from the WORLD'S FINEST WHEAT
WHEAT THAT IS *Carefully* SELECTED, *Correctly* BLENDED
AND *Really* WASHED

Look at These Celebrated Names
OGILVIE FLOUR ROYAL HOUSEHOLD
GLENORA FAMOUS
BUFFALO

—and These Famous Cereals
OGILVIE OATS WHEAT-HEARTS
BLENDIES TONIK WHEAT GERM
VITA-B WHEAT GERM CEREAL

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OGILVIE MONTREAL
ALL CODES
USED

The OGILVIE FLOUR MILLS COMPANY LIMITED
MONTREAL CANADA

Mills at
MONTREAL FORT WILLIAM
WINNIPEG EDMONTON
MEDICINE HAT

AMERICAN MAID FLOUR
ARROW PROTEIN CONCENTRATES
ARROW LIVESTOCK FEEDS
HIGH PROTEIN HARD WINTER WHEAT
ARMY E NAVY
Leaders in Domestic Quality Trade
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THEY GET THERE ... FIRST!
The clear red, white and blue border is your guarantee that Tension Air Mail Envelopes will receive first consideration by the postoffice. Airmail arrives first, is opened first, is answered first.
TENSION KNOWS HOW!
TENSION ENVELOPE CORP.
Originally
BERKOWITZ ENVELOPE CO.
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"Gooch's Best"
SUPERIOR QUALITY
to Make All Baked Things Better
Gooch Milling & Elevator Co.
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IF BUYING
MILO ★ KAFIR
Phone—Wire—or Write
Transit GRAIN COMPANY
FORT WORTH 1, TEXAS
Handling ALL OTHER GRAINS and FIELD SEEDS

MINER-HILLARD MILLING CO.
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Manufacturers of
Wheat, Rye, Corn and Buckwheat Flours

DIXIE LILY
A flour without an equal anywhere
Plain and Self-rising
THE BUHLER MILL & ELEVATOR CO.
BUHLER, KANSAS
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HARDESTY MILLING CO.
Quality Millers *for* Over Half a Century
Domestic and Export DOVER, OHIO

Dependable Hard and Soft Wheat Bakery and Family Flours
SAXONY MILLS
ST. LOUIS, MO.
Our 96th Year

FINGER LAKES AND HUDSON FLOUR MILLS, Inc.
Geneva, N. Y.
WHEAT FLOUR *Mills At* RYE FLOUR
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UNIFORM QUALITY FLOURS
PLAIN AND SELF-RISING
Low cost laboratory controlled mill grinding all types of wheat
Pancake Flour—Cake Flour—Farina—Whole Wheat Products—Prepared Biscuit Flour
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HIGH GLUTEN FLOURS
For Bakers
The Morrison Milling Co.
Denton, Texas
Emphatically Independent

Chickasha Milling Co.
Capacity 800 bbls CHICKASHA OKLA. Cable Address "Washita"
Manufacturers of High-Grade Hard Wheat Flour
Foreign and Domestic Trade Solicited
Member Millers' National Federation

GRIST OF GRINS

A woman wearing an anxious expression, called at an insurance office one morning. "I understand," she said, "that for $5 I can insure my house for $1,000 in your company."

"Yes," replied the agent, "that is right. If your house burns down, we pay you $1,000."

"And," continued the woman anxiously, "do you make any inquiries as to the origin of the fire?"

"Certainly," was the prompt reply; "we make the most careful inquiries, madam."

"Oh"—and she turned to leave the office—"I thought there was a catch in it somewhere."

Sam: Wish we had a fifth for bridge.

Syl: You don't need a fifth for bridge, you dope.

Sam: Well, make it a pint, then.

In days of yore, if anybody missed a stagecoach, he was contented to wait two or three days for the next one. Now, he lets out a squawk if he misses one section of a revolving door.

Junior: Dad, what is meant by an empty title?

Dad—Well, son, the best answer I can give you is your mother's custom of calling me the head of the house.

Mother runs a trolley
Sister mans a jeep
Grandma runs a tractor
Cousin sails the deep
Auntie's in the Coast Guard
Mary Ann's a WAC
Poppa sits and wonders
When they're coming back.

When the magician said he would take a spoonful of flour and one egg and make 20 pancakes, Angus MacTavish nudged his wife and whispered, "Watch closely, lassie."

He had had hard luck fishing. On his way home he entered the fish market and said to the dealer: "Just stand there and throw me five of the biggest of those trout."

"Throw 'em? What for?" asked the dealer, in amazement.

"So I can tell the family I caught 'em. I may be a poor fisherman, but I'm no liar."

Grocer.—How is your pair of pet rabbits, Mr. Jenkins? Remember last time you were here I gave you two carrots for them?

Mr. Jenkins.—That reminds me: Better send a bushel of carrots with my order.

A Chicago grocer has this sign in his window:

"I can't sing like Sinatra,
Or wisecrack like Milt Berle,
But, hully gee, believe you me,
I sure do need a girl!"

WOLF'S PREMIUM FLOUR
As fine a flour as you will find milled from the finest Turkey wheat in the heart of Kansas in
An Independent Mill
WOLF MILLING CO.
ELLINWOOD, KANSAS

The Rodney Milling Co.
20,000 CWTS CAPACITY
KANSAS CITY, MISSOURI
"Heart of America" FLOUR
CHICAGO OFFICE:
Kelly Flour Co., 919 N. Michigan Ave.
BOSTON OFFICE:
Seaboard Allied Milling Corporation
1209 Statler Bldg.

Pfeffer Milling Company
Manufacturers of Pure High-Grade Winter Wheat Flour
Brands: Lebanon Bell, Flake White, Fluffy Ruffles
LEBANON, ILL.
Member Millers' National Federation
Capacity: 1,000 bbls

Mother Hubbard Flour
FOR QUALITY, FLAVOR AND ECONOMY
Hubbard Milling Co.

"CREMO"
Just the Cream of Hard Wheat
CROOKSTON MILLING CO.
CROOKSTON, MINN.

King Milling Company
High Grade Michigan Soft Wheat Flour, Plain and Self-Rising
Successful Millers for Fifty Years
LOWELL, MICHIGAN

"Whitewater Flour"
Ground Where the Best Wheat Is Grown
WHITEWATER FLOUR MILLS CO.
Whitewater, Kansas

THE ROSS MILLING CO.
Choice Quality Flour
Plain and Selfrising
OTTAWA KANSAS

REPRESENTATIVE FLOUR IMPORTERS OF FOREIGN COUNTRIES

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Established 1870
STANNARD, COLLINS & CO.
FLOUR, GRAIN AND CEREAL PRODUCT IMPORTERS
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Cable Address: "DIPLOMA," Glasgow

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FLOUR IMPORTERS
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Cable Address: "MARVEL," Glasgow

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We are always in the Market for Hard and Soft Wheat Flours
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Flour and Semolina
Representing Highest Class Mills
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FLOUR
Representing
Highest Class Mills and Buyers
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Cake and Pastry Flours
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Sponge Cracker Flour
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FLOUR
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Standard of the South plus Dependable Service

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